TECHNOLOGY DEPT.

DECEMBER, 1952

Telephone Engineer and Management

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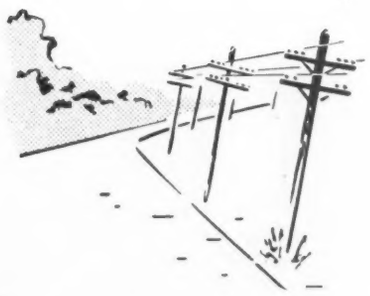
THE NATIONAL TELEPHONE MAGAZINE

Featuring In This Issue—

- The Markets For New Capital, by A. W. Kimber
- Modern Central Office Maintenance, by John S. Reed
- Washington Bureau Reports, by Roland Davies and Fred Henck
- New Ideas At Work • Questions & Answers

. . only creosote oil

has stood the test of time



Remember those stories the oldtimers tell about taking a spin in the country in their Stutz Bearcat. Well, sir, some of those poles that whizzed by when they hit the unbelievable speed of 45 miles per hour are still standing . . . that is, those that were treated with Creosote Oil! And many a railroad trestle built with Creosoted Lumber at the turn of the century is still giving safe, trouble-free service. In fact, lots and lots of creosoted railroad ties have been in the roadbed more than 25 years, even though subjected to the constant impact of heavy rolling stock.

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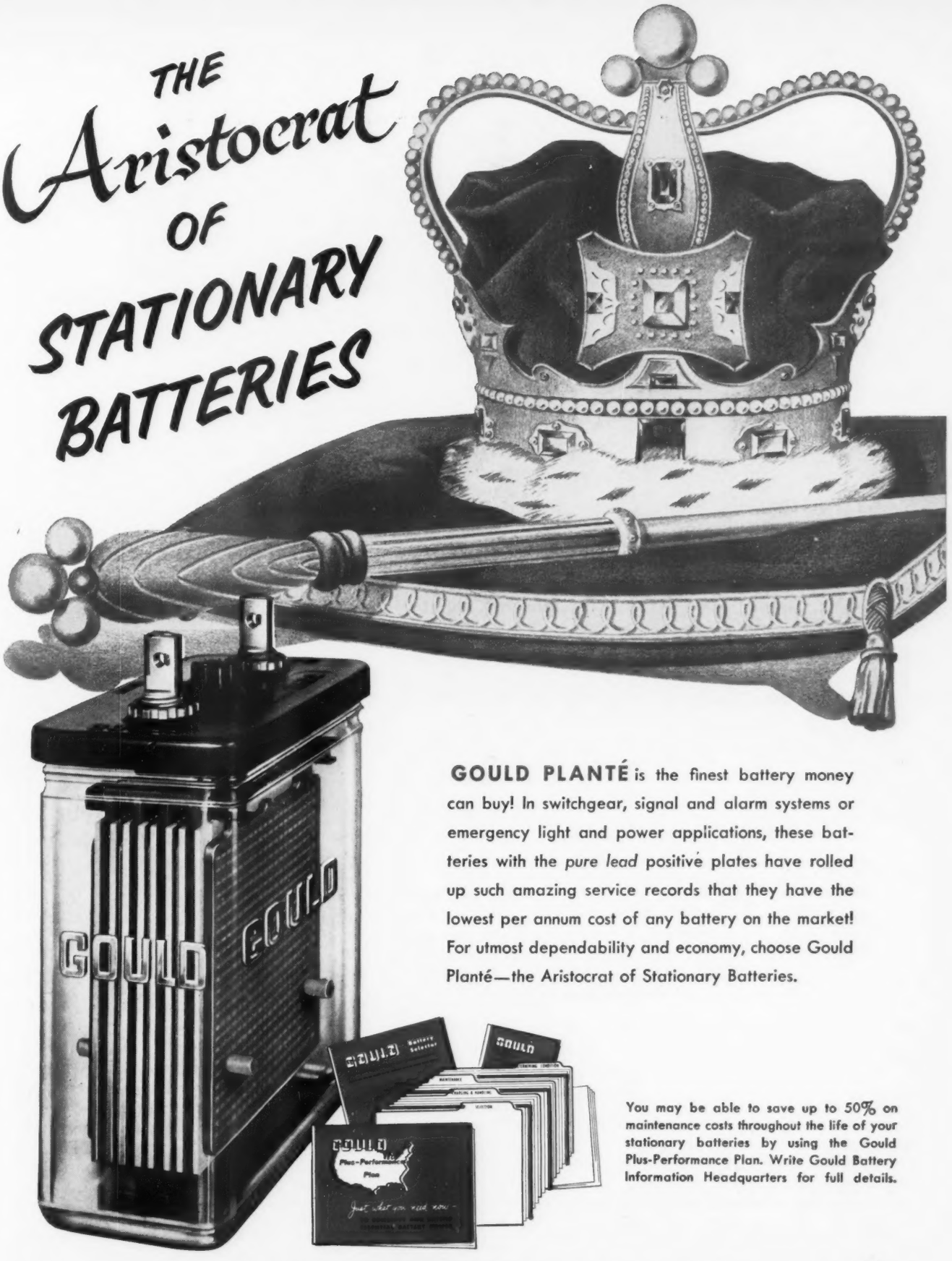

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The National Telephone Magazine

Telephone Engineer and Management

DECEMBER, 1952 VOL. 56 NUMBER 12

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FRONT COVER

Merry Christmas and a Happy New Year—Those words will sound across the land during the next few weeks. They'll be used when friend meets friend. Cheery greeting cards will carry them from home to home. Then on Christmas and New Year's days thousands of people will deliver holiday messages in person and by the next best method—the telephone.

For two thousand years the Yuletide has brought its message of hope and peace to the people of a troubled world. Today by means of the telephone these words of cheer can span the globe in a matter of minutes bringing goodwill to all mankind. —(Bell System Photo.)

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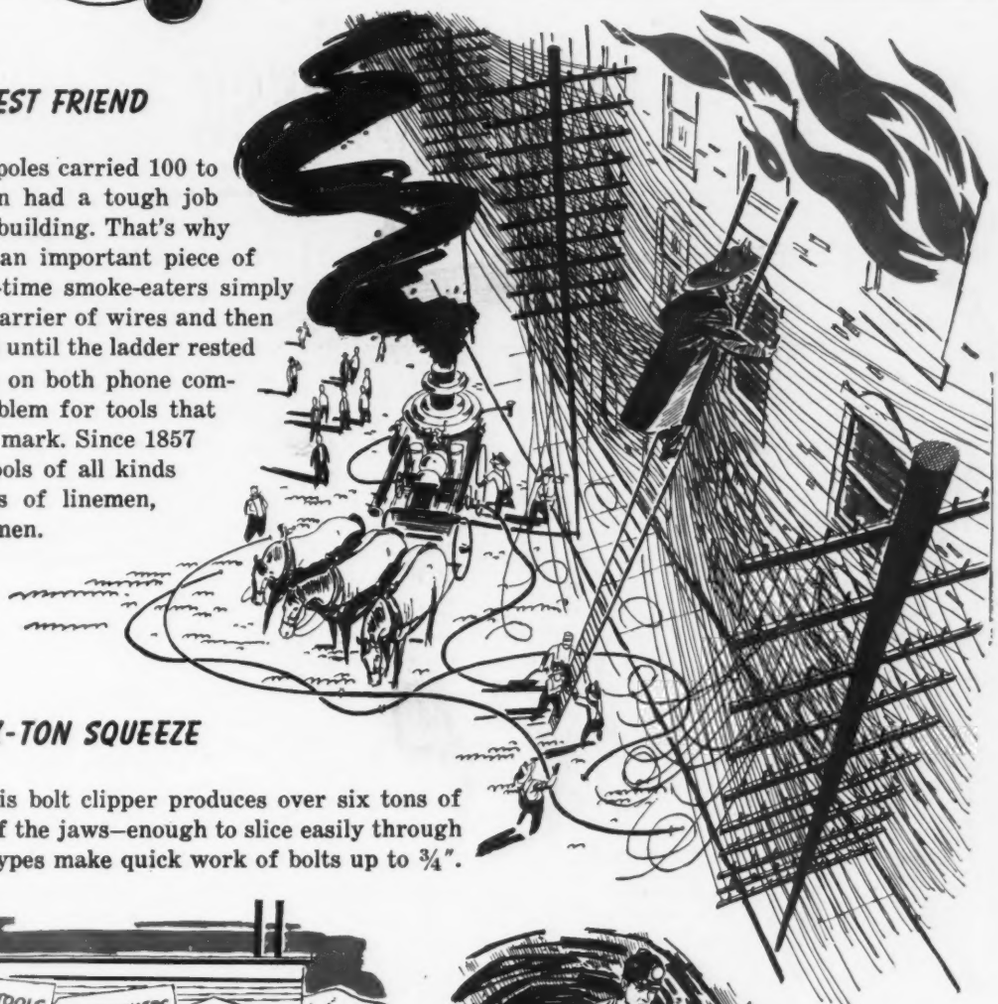
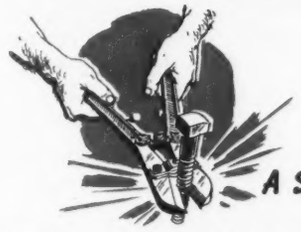
GraybaR TELEPHONE NEWS

WHEN CUTTING PLIERS WERE THE FIREMAN'S BEST FRIEND

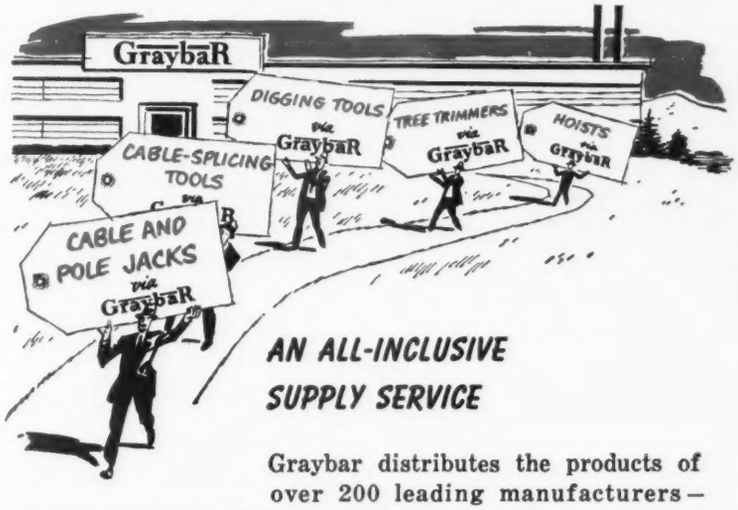
Back in the days when city poles carried 100 to 200 telephone wires, firemen had a tough job just getting near a burning building. That's why cutting pliers became such an important piece of fire-fighting equipment. Old-time smoke-eaters simply placed a ladder against the barrier of wires and then cut away strand after strand until the ladder rested against the building. Rough on both phone company and pliers, but no problem for tools that bore the famous Klein trade mark. Since 1857 Graybar-distributed Klein tools of all kinds have reliably met the needs of linemen, electricians . . . and even firemen.





A SIX-TON SQUEEZE

The leverage provided by this bolt clipper produces over six tons of cutting pressure at the heel of the jaws—enough to slice easily through a ¼" annealed bolt. Larger types make quick work of bolts up to ¾".



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Graybar distributes the products of over 200 leading manufacturers—among them many of the best-known tool brands . . . tools that linemen need, know, and respect. By ordering from this single source, you save purchasing paper-work and assure the *fastest possible* deliveries. Remember, your local Graybar Representative will be glad to assist at all times.

EVEN SOLID ROCK CAN'T STALL IT!

Thor ½" portable drills get *really* rough treatment from mining companies. Using carbide bits, Thor drills bite out 1¼" holes in solid rock without stalling – ample proof of the strength of the Thor motor and gearing . . . proof, too, of its ability to handle the toughest pole-line construction job. The complete line of portable Thor drills, saws, grinders, hammers, nibblers is distributed by Graybar.

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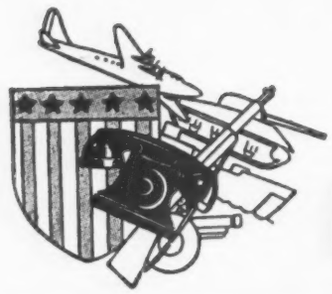

Across The EDITOR'S DESK

THE OKLAHOMA Telephone Association adjourned its annual convention in November and ended the state telephone conventions in 1952. We attended the three final conventions of 1952 of the Alabama-Mississippi association, the Florida association and Oklahoma. Southern hospitality is natural and effusive. Thanks to *Carl Brorein*, Tampa, for the nice trip he arranged for *R. E. Shotts*, Chicago, *A. F. Gibson*, Rochester, N. Y., *Foster B. McHenry* and the writer following the Florida meeting. His hosting was perfect!

WHILE WE were attending the southeastern meetings we noticed a 3-column story devoted to the accomplishments of *Mrs. H. M. Stewart*, Cornelia, Ga., in THE ATLANTA JOURNAL. *Helen Stewart* is the wife of the president of the Georgia Telephone Association. The newspaper praised Mrs. Stewart for her outstanding work as secretary of the Cornelia Chamber of Commerce which she has served for the past 4 years. As we know of Helen's boundless energy and enthusiasm, we were not too surprised of the recognition she has received. She is really *Mrs. Public Relations!*

CONGRATULATIONS TO the officers and directors of the Alabama-Mississippi Independent Telephone Association on their most successful annual convention. Their plan to meet jointly with Mississippi telephone folks is proving most successful and increased attendance is marked. We have noticed that this plan has been of much value to the Missouri-Kansas joint meeting in more than doubling attendance records. We hope other state telephone associations are investigating the value of meeting in joint convention with a close-by sister organization. Better attendance, better programs, better exhibits, and less time wasted are only a few of the advantages.

THE NOVEMBER issue of THE MICHIGAN BELL paid tribute to Michigan's 142 Independent telephone companies. Given special recognition for outstanding jobs were the PORT HOPE (MICH.) TELEPHONE CO. and the UNION TELEPHONE CO., Owosso.

The Port Hope Telephone Co. is typical of the majority of the family-owned companies in Michigan.

It was founded in 1909 by *Fred Stafford* and left to his son William. In 1928 the telephone company at Port Austin was purchased and became a part of the Port Hope company.

Because of the extended illness of *William Stafford* which was followed by death just a few years ago, surviving members of the family were faced with a reorganization job.

To assure the company of a healthy future, they first formed a corporation and made *Miss Frances Stafford*, daughter of the former owner, business manager of the company and secretary of the corporation. In addition, an experienced telephone man was employed to act as service manager.

Then capital was obtained for a modernization and expansion program which is now under way. Following the completion of these plans, the Port Hope Telephone Co., in all probability, will have increased its telephones from the present 532 to more than 1,000, and should be operating at a reasonable profit.

Headed by President *T. A. Saunders*, the Union Telephone Co., with headquarters at Owosso, is one of Michigan's larger companies.

This company, which was first organized in 1895, now has 1,300 employees and provides service to 70,000 telephones. It has 73 exchanges, 12 of which are common battery, 32 dial, and 29 magneto. And it owns and operates a sizeable toll line network.

Since 1946, it has grown to the extent of four to five thousand telephones each year. At the present time, Union Telephone Co. is adding plant at almost a million dollars a year and converting to dial as quickly as possible.

The area served by the Union Company is divided into eight districts with offices located at Dowagiac, Adrian, Alpena, South Haven, Alma, Mt. Pleasant, Owosso, and St. Johns.

Our entire Staff joins with me in best Wishes for a Happy Holiday Season! . . . As we think of you this Christmas, we wish that your tree be heavily laden with good health, good friends, good cheer and that the coming year reward your efforts abundantly.

Telephone Engineer

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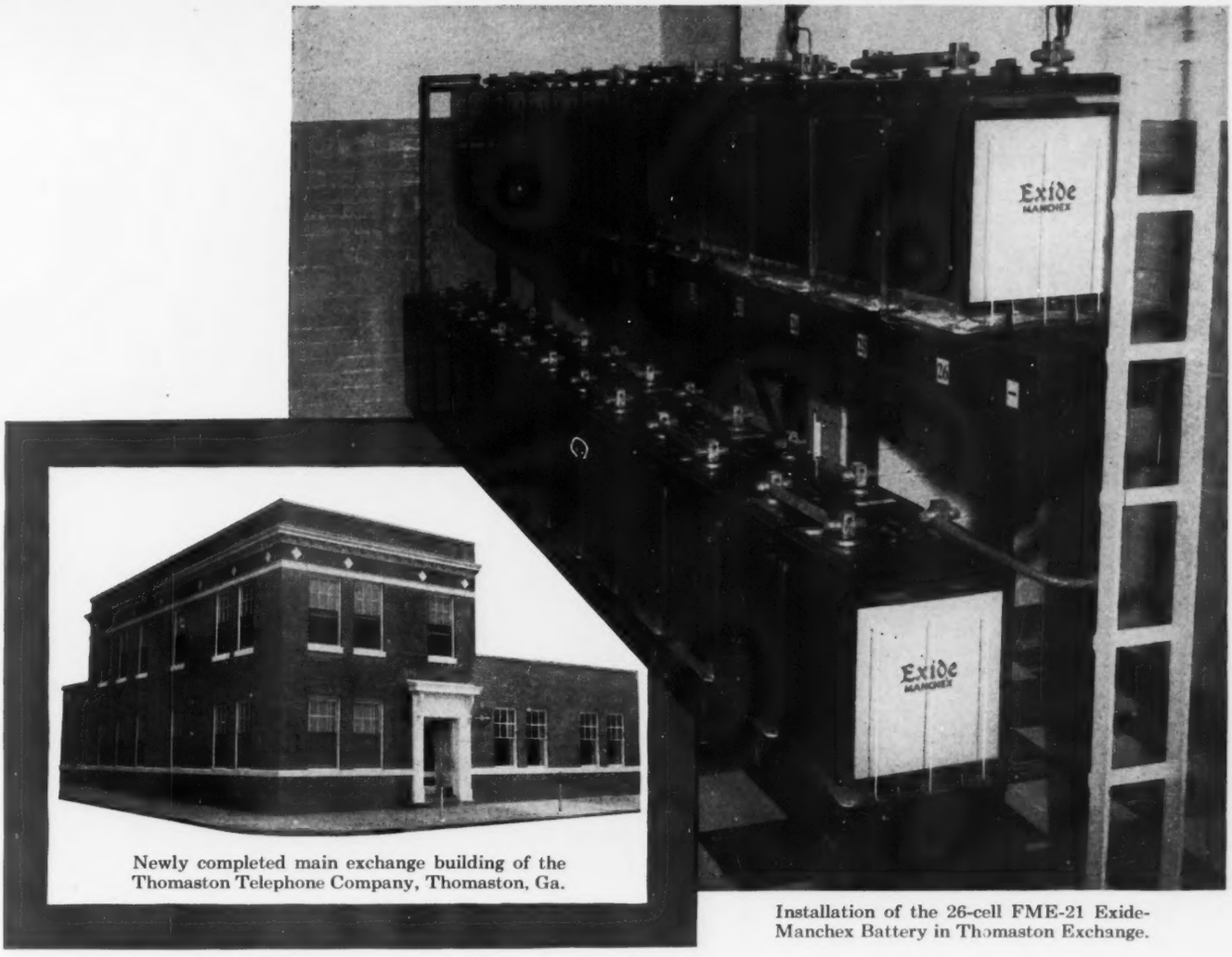

Newly completed main exchange building of the Thomaston Telephone Company, Thomaston, Ga.

Installation of the 26-cell FME-21 Exide-Manchex Battery in Thomaston Exchange.

Another new automatic system powered by

Exide-Manchex BATTERIES

Telephone companies in few cities, large or small, can match the progress made by the Thomaston Telephone Company. In this busy industrial community of west-central Georgia, the number of stations has almost doubled within the last eight years—2000 in 1944, 3500 in 1952 with a waiting list of approximately 500.

But number of subscribers is only one measure of the company's growth. Construction of a new telephone exchange building has been completed. An automatic system has been installed. Other equipment is reported to be "the finest that research could develop or money could buy." Among this equipment are Exide-Manchex batteries, assurance of:

POSITIVE OPERATION: Dependable performance for all telephone battery requirements—central office and private branch exchange equipment.

ADEQUATE RESERVE POWER for emergencies beyond normal needs.

LOW OPERATING COST: Extremely low internal resistance.

LOW MAINTENANCE COSTS: Water required about twice a year. No change of chemical solution during life of battery.

LOW DEPRECIATION: Sturdy, long-life construction, which includes the exclusive manchester positive plate.

GREATER CAPACITY in a given amount of space avoids over-crowding of equipment.

• • •

Various sizes and types of Exide Batteries, up to 100 ampere hours capacity, are available in plastic containers.

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"Exide" and "Manchex" *Reg. T.M. U.S. Pat. Off.*

1888 . . . DEPENDABLE BATTERIES FOR 64 YEARS . . . 1952

Throughout the festivities of the Holiday Season—the giving of gifts and exchange of greetings—may we be alert to recognize that, more than just another anniversary of that great and past event which ushered in the Christian era, the Spirit of Christmas lives forever in the hearts of men, appearing and reappearing in the growth of Wisdom and Truth in the world, and though the storms of earth gather to new crescendoes of evil, midst cries of "Crucify Him!", yet the impotence of error is forever sealed in the fall of its proponents.

Thus the Christ-Mass lives on, and the year just past records a step nearer the goal of the heralded "Peace on Earth, Good Will Toward Men."

President

NORTH

THE NORTH ELECTRIC MANUFACTURING CO., GALION, OHIO

NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

December 15, 1952

Dear Sir:

Looking to eventual expiration of government's controlled materials plan, members of the Domestic Communications Operating Industry Advisory Committee, at meeting Nov. 21, with National Production Authority (NPA) officials, presented their views as to what measures should be taken by government.

Majority of group took position that standby organization to continue after controls are ended, to be prepared for another emergency, would not be necessary because new group could be organized quickly. It was also consensus of industry representatives that after controlled materials plan is ended it will not be necessary for industry to supply government with information on materials usage because industry has such information readily available.

* * *

Recent REA telephone allocations included the following:

$255,000 allocation to Tri-County Tel. Membership Corp., Belhaven, N. C. Newly-organized co-op plans to serve part of area known as "Great Swamp." Area now has no telephone service, REA said. Co-op plans to build 148 miles of line, & serve 506 subscribers.

Five Area Tel. Co-op., Muleshoe, Tex., was granted $983,000 loan allocation to expand rural telephone service in 6 counties. It plans to build 1059 miles of line, & install 7 new dial central offices, serving 1322 subscribers.

REA also granted supplemental loan to Oklahoma Automatic Tel. Co., Kiowa, Okla., for $243,000.

Santa Ana (Tex.) Tel. Co. received $152,000 allocation. Company now provides common battery service over 88 miles of line to 543 subscribers. With loan, borrower expects to install 2 dial central offices, build 52 miles of new line, & add 155 new subscribers.

New Hope (Ala.) Tel. Co-op. received $60,000 supplemental allocation to cover increases in costs since 1st loan of $115,000 was approved in Sept., 1951.

* * *

Pres. Donald C. Power of General Tel. Corp. & chairman of U. S. Independent Tel. Association's Tax Committee in recent statement submitted to Joint Congressional Committee on Internal Revenue Taxation pointed to burdensome effect of discriminatory corporate taxation, double taxation of dividends & excise taxes on local telephone service

& toll calls. Mr. Power's statement was in response to general questionnaire designed to elicit information for use by committee in its deliberations on need for revision of existing tax laws.

Mr. Power recommended following revisions be made in Internal Revenue Code: (1) Excise tax on all telephone service be removed, thus eliminating telephone service from highly taxed category of luxury items; (2) Law be amended to permit deduction of dividends as expense of business as means of removing existing discrimination against business carried on in corporate form & avoiding double taxation; (3) Legislation be enacted according shareholders of corporations with income of less than $50,000 same treatment accorded partnerships by permitting them to elect to include in their own individual income tax returns their share of income of such corporations based upon their stock holdings; (4) Section 141 (d) (2) be revised to exempt public utility voting stock which is limited & preferred as to dividends, & (5) two per cent additional tax imposed by Section 141 (c) for privilege of filing consolidated return be abolished.

* * *

HIGHLIGHTS:-Central Tel. Co., Shepherdstown, W. Va., planning $20,000 expansion program . . .Project Tel. Co., Powell, Wyo., sold to Mountain States Tel. & Tel. Co. . . Sooner Tel. Co., Inc., Oklahoma City, Okla., granted charter with capital stock of $30,000 . Incorporators: Billie Chastian, Ferrill Rogers & George F. Saunders . . . Midland Tel. Co., Monticello, Utah, completing expansion project . . . Sweetser (Ind.) Rural Tel Co. completed changeover to automatic operation . . . Logan (O.) Home Tel. Co. plans completion of automatic system some time next summer . . . Watertown (Minn.) Tel. Co. plans to increase capital stock from $200,000 to $400,000 . . . $398,000 loan for Foothills Rural Tel. Corp., Blaine, Ky., approved by REA . . . Mrs. Nina Sullivan named manager of Sanger (Tex.) Tel. Co. . . . United Tel. Co., Warsaw, Ind., converted Larwill (Ind.) exchange to automatic operation.

Farmers Independent Tel. Co., Grantsburg, Wis., completing installation of common battery system . . . Assaria (Kans.) Tel. Co. dissolved . . . Northeastern District of Ind. Tel. Assoc. named Grant Kelley, mgr. of Waterloo (Ind.) Tel Co., new pres., to succeed Don Van Fleit, mgr. of Garrett Tel. Co. . . . Nebraska Central Tel. Co., Sheltan, Neb., announced plans for conversion to automatic operation . . . REA approved second loan of $64,000 to Cream Valley Tel. Co., Hawkins, Wis. . . . West Carolina Rural Tel. Co-op., Inc., Columbia, S. C., plans conversion of Starr & Iva (S. C.) exchanges to dial operation.

West Cross Timbers Tel. Co-op., Inc., Stephenville, Tex., incorporated by Raymond L. Jarrett, N. H.Underwood & V. R. Laughlin . . . Texas County Rural Tel. Co-op., Houston Mo., applied for $450,000 REA loan; has 750 membership applications on file.

Ray Smith

Ray W. Smith, Editor

INTERNATIONAL AUTOMATIC ELECTRIC

SERVICE

Solves Challenging Expansion Problem In

URUGUAY

Photo shows 60-volt Strowger Automatic equipment (two bays at left) working in complete harmony with European step-by-step trunking equipment (right bay) in the 8,000-line Pocitos branch office at Montevideo, Uruguay.

During the war, the ten exchanges of European manufacture in the Montevideo network required urgent large-scale expansion. As equipment from the original supplier was unavailable, International Automatic Electric was asked to supply Strowger Automatic equipment which would work with existing equipment without special interconnecting devices — although the existing equipment operated on 60 volts! International Automatic Electric surveyed both traffic and outside plant, studied the special circuit features of the existing system, engineered and manufactured Strowger Automatic equipment to work with it, installed this new equipment, and trained local personnel in its maintenance. Nineteen thousand lines of 60-volt Strowger Automatic equipment are now integrated into the network and provide uniform service in all offices. Examples like this prove that International Automatic Electric Service can meet telephone needs all over the world. Write us about your problems today.

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Kellogg Center, Continuing Education Service, of Michigan State College at East Lansing, Mich., was the location of a conference of chief operators and district managers of the Union Telephone Co. with headquarters at Owosso, Mich. The conference was led by F. C. Lickteig, traffic superintendent of the company.

Shown above are: (Top Row) G. J. Cox; J. H. Waters; A. Richardson; M. Taylor; V. Hummel; F. West; M. Doty; E. King; J. W. Gabriel; P. Wank; I. L. Fry; H. W Smeed; (Center Row) R. D. Trezise; W. Wixson; F. Wietzke; K. Hawley; M. Greenman; K. Watson; G. Muth; G. Baughman; L. Mielke; A. J. Seaburg; W. J. Imeson; F. C. Lickteig; A. Morris; F. McCarl; C. Anderson; C. McCall; E. Congonte; E. Sluyter; L. Rasmussen; N. Richey; N. Couch; J. Feick; B. Shirey, and B. Gould.

Industry News Briefs

General Tel. of Pa. Places Bond Issue

GENERAL Telephone Co. of Pennsylvania has placed privately $3,000,000 in 3½% first mortgage bonds, President L. F. Shepherd announced last month. Several pension funds and a life insurance company have purchased the bonds, which will enable the company to retire notes payable to banks and help provide it with the necessary cash to complete its 1952 construction program. General of Pa. supplies telephone service in 40 exchanges for more than 148,000 telephones.

Rate Boost Approved For General Subsidiary

THE GENERAL Telephone Co. of the Southwest, which serves 130,000 telephones in five states, has received authority for an $111,000 rate increase in Oklahoma from the state's Corporation Commission. The increased rates were granted to recover recent wage increases and advances in materials costs.

1½ Million Telephones for General Telephone System

ONE-AND-ONE-HALF million telephones are now served by the General Telephone System; that was the total reached last month when a telephone was installed at the home of Mr. and Mrs. Carl Melchin, 1029 N. Main St., Kewanee, Ill., by the General Telephone System's subsidiary operating company, General Telephone Co. of Illinois. This milestone reached by the General Telephone System is a net gain of better than 100% since December 1945. At the close of World War II, the System had less than 700,000 telephones.

General Telephone System traces its history back to 1920 when there were about 1,544 telephones in service in five small Wisconsin communities. Fittingly enough, the one millionth System telephone was installed at Richland Center, Wisconsin in May 1948.

At the end of 1935, the General Telephone System included 13 operating companies with a total of 380,000 telephones and one Directory Publishing Company. Today these 14 subsidiary operating companies are serving 1½ million telephones. In addition to a greatly expanded directory company, a manufacturing subsidiary, the Leich Electric Co., has been added to the System.

General Telephone Company of Illinois, where the historic installation of the 1½ millionth telephone took place, is one of the major subsidiary operating companies within the General Telephone System. Headed by Burton W. Saunders as president, the company has headquarters at Springfield, Ill. At present General Telephone Company of Ill. is furnishing service to more than 160,000 telephones in 222 exchanges, the largest of which are Kewanee, Lincoln, Macomb, Monmouth and Carbondale.

FCC Schedules Hearing On Indiana Bell Purchase

THE CUSTOMARY FCC hearing on proposals to acquire telephone facilities was scheduled by the Commission Nov. 26 on the proposal of the Indiana Bell Telephone Co. to buy and operate the "east side" properties of the John T. Detchon estate. The hearing is slated for Dec. 16.

Indiana Bell filed the application several weeks ago, after executors of the estate and the probate court approved its bid, and the Indiana Public Service Commission gave its approval to the transaction.

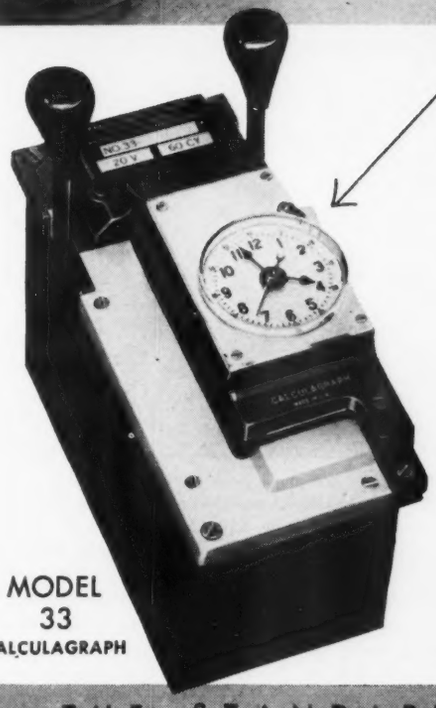
The case has nothing to do with the controversy over the "west side" properties of the Detchon estate, which a Rural Electrification-financ-

(Please turn to page 14)

Here's why *modern* exchanges use

CALCULAGRAPH

Photo Courtesy of STROMBERG CARLSON CO. and THE PENINSULAR TELEPHONE CO.



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33
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For complete information on the various models available write to —

CALCULAGRAPH COMPANY

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THE STANDARD OF ACCURACY SINCE 1892

Telephone men and women of Nebraska met recently at Coleridge, Neb., and participated in a district meeting sponsored by the Assistance Committee of the Nebraska Telephone Association. The above photo shows some of the meeting delegates.

ed co-op is seeking authority to operate in a proceeding before the Indiana commission.

Involved in the "east side" application, set by the FCC for hearing, are the Brownsburg Telephone Corp., Central Indiana Telephone Co., Converse Consolidated Telephone Co., Saleville & Middletown Telephone Co., Sims Telephone Co., the Citizens' Telephone Co. of Zionsville, Union Telephone Co., and Noblesville Telephone Co.

Bell Lab Announces New Coaxial System

A REVOLUTIONARY new coaxial cable system, with triple the telephone circuit capacity of those now in use, has been developed by Bell Telephone Laboratories and is undergoing exhaustive field trials prior to its installation for use in the Bell System. It is expected to go into actual service on circuits between New York and Philadelphia early in 1953.

The new system, known as "L-3" carrier, will enable one pair of coaxial pipes (pencil-size tubes of copper within the cable itself) to handle simultaneously more than 1,800 telephone conversations or 600 telephone conversations plus one television program in each direction. It will be the first carrier system on which both television signals and regular telephone conversations can be sent over the same pair of coaxial pipes at the same time.

The field trials are being conducted in co-operation with the Long Lines Department of the American Telephone & Telegraph Co., and associated companies of the Bell System.

Bell Laboratories, in designing "L-3", has brought numerous advances to bear upon transmission technology. It was necessary, for example, to design new amplifiers or "repeaters," with characteristics exceeding any earlier type. In "L-3," as in earlier coaxial systems, power is fed to the repeaters over the coaxial cable from widely separated power points. The higher power requirements of

An engineer at Bell Telephone Laboratories tests transmission characteristics of the new coaxial cable system, known as "L-3" carrier. Developed by Bell Laboratories, the system has three times the telephone circuit capacity of those now in use. Now undergoing field trials prior to its installation for use in the Bell System, it is expected to go into actual service on circuits between New York and Philadelphia early in 1953. It will enable one pair of coaxial pipes (pencilsize tubes of copper within the cable itself) to handle simultaneously more than 1,800 telephone conversations or 600 telephone conversations plus one television program in each direction. "L-3" will be the first carrier system on which both television signals and regular telephone conversations can be sent over the same pair of coaxial pipes at the same time.

Outdoor Paystation Earns Ohio Independent

$157 per Month

In a small Ohio village of approximately 1,500, an outdoor paystation has been bringing in revenue averaging $157.00 per month. Here's *proof* that outdoor paystations pay!

Autelco Paystations installed in smartly-styled booths, advertised by big, easy-to-read signs, will jump *your* paystation income surprisingly. These convenient installations are easy to find, simple to get to, and patrons can use them 24 hours a day.

YOU CAN GET *10-Cent* AUTELCO PAYSTATIONS NOW if you wish. Write for Circular 1724 showing our full line and kits for conversion to the 10-cent rate.

Product of the Telephone Specialtly Department of

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

YOUR GUARDS ARE DOWN!

DO AWAY WITH GUY GUARD TROUBLES LIKE THIS . . .

SPECIFY

Flexibal

THE GUARD THAT CAN'T GO WRONG!

COSTS 1/3 LESS THAN METAL GUARDS—AND NO MAINTENANCE PROBLEM

FLEXIBAL Guy Guards — in standard lengths — provide the flexibility that gives with the blow and cushions the impact. Aluminum-painted, they offer both day and night visibility. No other type of guard is so easy to handle, so simple to install — none so effectively cut down losses — never gets out of commission.

USED AND PRAISED BY CONSTANTLY GROWING LIST OF UTILITIES

R.E.A. APPROVED

Write for Free Sample and Prices

IMMEDIATE DELIVERY

TEN COMPLETE SETS IN THIS ONE LIGHT EASY TO HANDLE CARTON

SEE YOUR JOBBER OR WRITE TO

S. E. OVERTON COMPANY

SOUTH HAVEN, MICHIGAN

Telephone men in attendance at district meeting conducted by Nebraska Telephone Association at Hartington, Neb.

the new repeaters — and the fact that twice as many are used in the new system — presented a number of technical problems.

New terminal equipment also was necessary to pile up 1,800 circuits and permit both addition and subtraction of smaller groups of circuits at intermediate points. Means for putting television signals on the line and distributing them at intermediate points without introducing distortion had to be developed. Sending both television and telephone signals over the same circuits created the problem of preventing interference between the two types of signals.

Coaxial cable is one of the two types of facilities used by the Bell System in its intercity television networks. The other type is radio relay, an entirely different method of transmitting communication services. (Radio relay uses sharply focused micro-wave radio beams, which are transmitted serially along a chain of relay towers.) Although coaxial cable and radio relay systems are constructed primarily to meet the needs of long distance telephone service, provision is being made at the same time for television channels and other Bell System communication services where demand warrants it.

The basic coaxial cable system was the invention of two Bell Laboratories engineers, Herman A. Affel and Lloyd Espenschied, and was patented in 1931. The first experimental installation was in Phoenixville, Pa., late in 1929.

New Texas Co-op Starts Operation

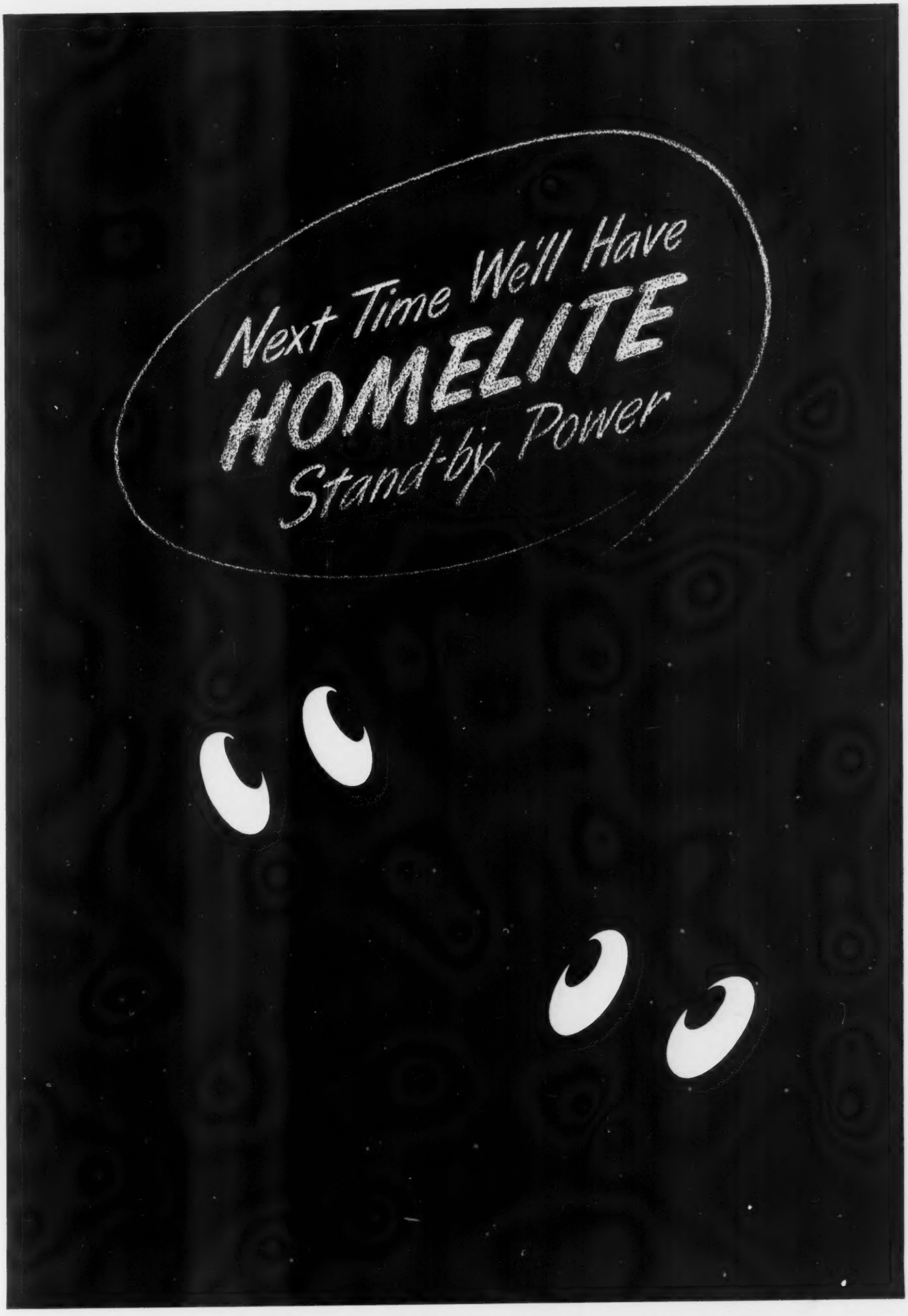
The Central Texas Telephone Cooperative, Inc., Goldthwaite, Texas, is in actual operation, according to announcement by Ernest E. Wilson, secretary. He stated that all legal technicalities have been cleared for the entire project and $1,540,000 has been released for section "A" of the project.

Funds have been granted for operation expenses and also for acquisition of the 12 exchanges in the territory which will be a part of the co-operative.

Six Independently owned ex-

(Please turn to page 18)

Program team for the 1952 district meetings of the Nebraska Telephone Association. Left to right: Ray Clinton, Lincoln; J. A. Bonebright, Lincoln; James L. Morrison, Nebraska Association secretary, Lincoln; M. K. James, North Platte.


Next Time We'll Have
HOMELITE
Stand-by Power

Four Big Questions And Four Short Answers

(1) *How can telephone companies claim that telephone service is one of today's biggest bargains when rates have gone up?*
Answer: There are many reasons for this statement but probably the most important of all is that telephone service now is a smaller part of the family budget than ever before.

(2) *Why do telephone companies ask for rate increases?*
Answer: Telephone companies have to pay higher taxes, higher wages and higher prices for the things they buy. Inflation has shot up their "cost of living" the same as it has that of individuals and other companies.

(3) *How long will telephone companies continue to ask for higher rates?*
Answer: The answer is simple and inescapable. Telephone companies will have to charge more just as long as the country keeps on with inflation.

(4) *Since it costs so much to expand these days why don't telephone companies stop building new plant?*
Answer: The public wants service, the nation must have it—more and more of it all the time. To give the service telephone companies must have the plant. When they build new plant they must earn a sufficient return on it as well as on the plant already in service. Otherwise the money to keep on building won't come in.
—Pacific Telephone Magazine

changes have been purchased and are now being operated by the co-operative.

C. C. Sanders, manager, has assumed his duties in offices located in Goldthwaite.

Stockton Joins Ill. Bell As Operating Vice Pres.

JOSEPH D. STOCKTON, former Illinois Bell Telephone Co. general manager for its state operations, and now an assistant vice president of the American Telephone & Telegraph Co., will assume his new duties as operating Vice President of Illinois Bell Jan. 1, following his election to the post by the Board of Directors Nov. 26.

Mr. Stockton's entire telephone career, starting in 1929, has been with Illinois Bell, with the exception of his period of service with AT&T this year. At AT&T, he has been handling special assignments in personnel relations.

Recent REA Rural Telephone Loan Grants

THE RURAL Electrification Administration has recently approved the following loan allocations to finance the improvement and extension of rural telephone service:—

ETEX TELEPHONE COOPERATIVE, Gilmer, Texas, $665,000 loan, to provide telephone service in rural areas of Upshur, Gregg, Smith, Wood and Marion Counties. The newly-organized cooperative plans to build 500 miles of line, and install automatic dial central offices near Gilmer, Gladewater, Kilgore and Jefferson, and in Rosewood and Bettie. These facilities will bring modern dial service to 1,235 subscribers in this part of the State now without telephones. Service without toll charge is planned between the Rosewood, Bettie and Gilmer exchange areas. In addition, the applicant proposes similar service between each of the co-op's exchange areas at its nearby trading center. The completed system will have basic plant facilities to meet the needs of all potential subscribers in the operating area.

SILVER STAR TELEPHONE CO., Freedom, Wyo., $92,000 to finance the improvement and extension of existing rural telephone service in Lincoln County, Wyoming, and Caribou

(Please turn to page 54)

T. A. Saunders, president of the Union Telephone Co., Owosso, Mich., has announced the opening of its new office and the installation of new boards and equipment at Rogers City, Michigan, exchange. J. F. Van de Vusse, general manager, and William J. Imeson, district manager of the exchange, were on hand for the open house which gave the telephone customers and general public an opportunity to inspect the new installation.

The telephone office (shown above) was enlarged and the interior remodeled to house new boards and provide a large commercial office and lobby. The operators room has been enlarged to accommodate the new modern common battery four-position switchboard. An addition has been made to the rear of the building to provide access to the basement and plant department. The basement has been enlarged for equipment.

Built to serve the serviceman!

Ask a serviceman what he likes best about his International Truck. You'll get many answers.

Some will tell you Internationals are always dependable, always get there. Others will mention comfort of the cab or handling ease. Still others go for the service-utility bodies that bring a whole workshop to the job.

Whatever their reasons may be, they all agree that these great trucks are engineered to make the serviceman's job easier, more efficient. To put one on your job, see the nearest International Dealer or Branch soon.

INTERNATIONAL HARVESTER COMPANY • CHICAGO

Look at these features:

- Silver Diamond valve-in-head truck engines are rugged, packed with extra power. Engineered to save you plenty on operating and maintenance costs.
- New green-tinted, non-glare safety glass available in the Comfo-Vision Cab. One-piece full-vision windshield.
- Super-steering—more positive control. Wider front axles make possible full 37° turning angle for easier handling and maneuverability.
- Wide variety of light-duty models—½, ¾, and 1-ton sizes—GVW's from 4,200 to 8,600 lbs. 115, 127, 134-in. wheelbases. Pickup, panel, stake, and many other types of bodies.

International Harvester Builds McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers

Better roads mean a better America

INTERNATIONAL TRUCKS

"Standard of the Highway"

International L-110 and L-120 series, 115 and 127-in. wheelbases, available with special service-utility bodies.

Safer THAN EVER • *Better* THAN EVER

SOLDERING PRODUCTS
WALL
The Safety Line
SINCE 1864

Pisto Grip BLOW TORCH

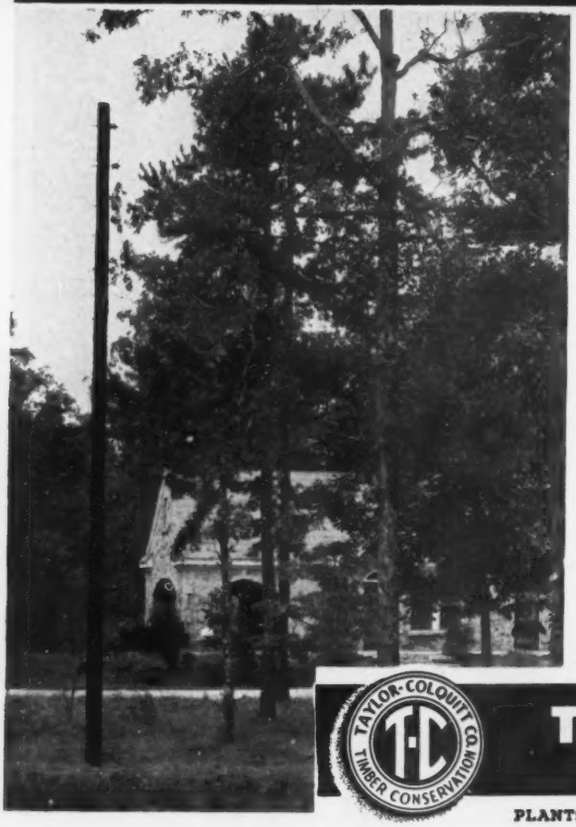
You get added safety and added performance in Wall Blow Torches with the revolutionary new Pisto-Grip handle. Drawn steel tank has brazed inserts and electrically seamed bottom. The Wall blow-proof pump means added safety. Available in brass or steel. No extra cost for this new handle. It will sell on sight! Write today for complete catalog.

COMPOUND KETTLES • FIREPOTS • OILERS • SAFETY SHIELDS • SOLDERING IRONS • SOLDERS • OIL CARRIERS • PAINT POTS • ACCESSORIES

WALL MANUFACTURING CO.
Grove City, Pa.

SOLDERING PRODUCTS WALL *The Safety Line* SINCE 1864

FOR FIRST CLASS SUBURBAN AND RURAL LINES



TAYLOR-COLQUITT
TREATED PINE POLES

With the trend moving rapidly toward more suburban and rural line construction, Taylor-Colquitt treated pine poles ideally meet one of the pressing problems which telephone companies face.

For service can be no better than the lines and good lines can only be built on first class poles. Not only must these poles be strong originally but they must be able to retain their strength and stand through the years, unattended and undisturbed.

The many million which Taylor-Colquitt has furnished during the past quarter century give eloquent testimony to the service that Taylor-Colquitt treated pine poles give.

Taylor-Colquitt poles are distributed to independent telephone companies exclusively by Automatic Electric Sales Corporation, 1033 West Van Buren Street, Chicago 7, Illinois

T-C TAYLOR-COLQUITT CO. TIMBER CONSERVATION

TAYLOR-COLQUITT CO.
SPARTANBURG, SOUTH CAROLINA

PLANTS AT SPARTANBURG, SOUTH CAROLINA AND WILMINGTON, NORTH CAROLINA

OLDEST RAYTHEON RECTICHARGER®

"Sound as a 1937 Dollar"

AFTER 15 YEARS OF CONTINUOUS SERVICE

The Raytheon RectiChargeR found in our "Oldest RectiChargeR Search" was returned to The Raytheon Engineering Laboratory for testing and thorough inspection. The findings appear below.

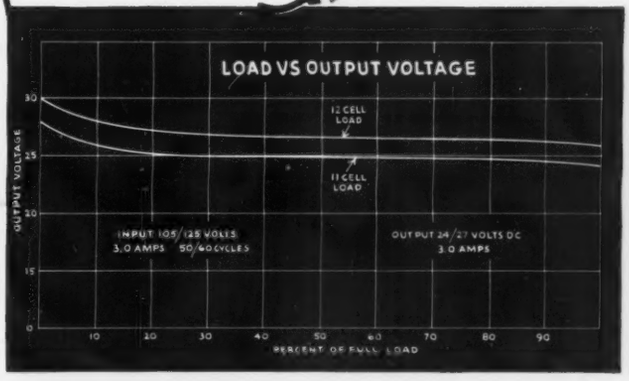
The splendid condition of this old RectiChargeR is a tribute to the dependability of Raytheon products and to the excellence of Raytheon design, workmanship, materials and construction practice.

ENGINEERING REPORT

SUBJECT: Oldest RectiChargeR
Careful testing and inspection of this unit reveals:

1. Electrical qualities in no way impaired (see chart).
2. A noticeable lack of rust or corrosion on chassis, hardware and components.
3. Original paint shows no sign of deterioration.
4. No evidence of embrittlement or cracking in varnish on magnetic components.
5. All hardware sound and secure.
6. Cable firm and unbroken.
7. Lacing intact with all wiring firmly in original position.
8. All soldered joints secure and strong.

(Signed) George L. Blais
ENGINEERING DEPARTMENT



Load vs. output voltage tests show no loss of electrical characteristics after 15 years of service. Note the freedom from dips and peaks in the curves — indicating uniform voltage output under varying load conditions.

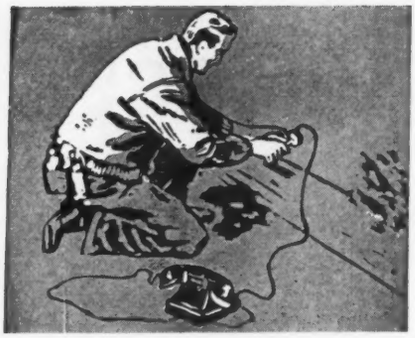
J. R. Shipley (right) Manager of Caldwell Telephone Company, Caldwell, Kansas, winner of the recent "Oldest RectiChargeR Search", receives a $100 Defense Bond from John J. Eibye, Raytheon Telephone Products Sales Manager. The RectiChargeR (upper left) has been on the job since February, 1937.

RAYTHEON
MANUFACTURING COMPANY
EQUIPMENT SALES DIVISION
DEPT. 6270- WALTHAM 54, MASSACHUSETTS

DISTRICT OFFICES: BOSTON, NEW YORK, CLEVELAND, CHICAGO, NEW ORLEANS, LOS ANGELES (WILMINGTON), SAN FRANCISCO, SEATTLE
INTERNATIONAL DIVISION: 19 RECTOR ST., NEW YORK CITY

RAYTHEON PRODUCTS INCLUDE: RectiChargeR* battery chargers; RectiFilteR* battery eliminators; Voltage stabilizers (regulators); Transformers; Tubes and other electronic equipment.

*Reg. U. S. Pat Off.



New Ideas At Work

By RICHARD ALLEN

Electronic Nose Sniffs Out Leaks

AFTER YEARS of buffeting by the wind, even tough telephone cable sometimes shows its age. Here and there the lead sheath may crack from fatigue or wear through at support points. Before moisture can enter to damage vital insulation, leaks must be located and sealed.

To speed detection, scientists at Bell Laboratories constructed an electronic nose which sniffs out the leaks. Using an electrically operated element developed by the General Electric Co., the device detects leaks of as little as 1/100 cubic foot per day. Sheath inspection can be stepped up to 120 feet per minute.

In operation, the electronic nose is pulled from pole to pole by line extending toward the ground. Previously, workmen had to paint the cable with soap solution, so bubbles would disclose leaks.

For test, the cable is cleared of protective nitrogen or air, and filled with Freon gas. Case collects escaping gas which operates Freon-sensitive detector underneath. At points where Freon escapes through sheath cracks, a combined control unit and power supply rings a bell. Workmen mark the point of leak for later repair.

The Trend To Outdoor Booths

THE OUTDOOR telephone booths — sentinels of service — stand guard along main highways, at street corners, in housing developments, drive-in restaurants, trailer camps, service stations and elsewhere. From a humble post-war beginning the outdoor booth has grown to be a responsible, self-supporting and contributing financial member of the telephone family. At the present time, there are nearly 800 coin telephones of this type in *Ohio Bell* territory. The increasing frequency with which one encounters them indicates that the public likes and wants more of them.

It would be difficult to attribute their success to one single factor. The booths are generally more accessible, more convenient and easier to find. There has been marked improvement in the type of signs used to point out booth locations. The outdoor telephones can be used by the public on a 24- hour basis. They can be located in areas where surveys indicate a need for public telephone service. It is this combination of factors that has given the outdoor booth an edge over its counterpart on the inside. Recent figures indicate that, on the average, revenues from outdoor booths run as high as 50% more than the average indoor booth.

Other studies show that booths located near truck stops attract more business than any other. Next, in order of their popularity, come the booths associated with downtown locations, bus turnarounds, drive-in and neighborhood locations.

In Columbus, Ohio, service engineers feel that the 120 outdoor booths in Franklin County represent only a scratch on the surface of this market. Perhaps, if past growth can serve as a barometer, the number of outdoor booths will double in the next 12 months. Although it is doubtful if the outdoor booth will ever entirely replace the indoor pay station, there is every indication that there will be a continuing trend toward more and more outdoor public telephone service.

Dial and Dictate

SUCCESSFULLY working in the offices of a few concerns is a device that may be destined for a big future in streamlining office procedures. Aptly named "Dial and Dictate," the new method provides ready access to centrally located dictating equipment for all who have occasion to use it.

It works something like this. The user picks up his telephone, dials a number through the company PBX and is connected to the dictating equipment. If the machine is in use, he gets the busy tone and can try later. (Although not working at the present time, engineers assure us that rotary service could be used — that is, a battery of machines could be wired together so if one were busy the call would be routed to another.) When the user gets through to the machine, a relay cuts off the ringing current and the dictating machine goes to work. There is a recorder-connector in the circuit that gives the familiar "beep" tone indicating the message is being recorded. An attendant in the stenographic office keeps the machines supplied with new records and distributes the completed ones to the typists.

Another possible use of the equipment is by company salesmen who, when calling in orders, can be connected to the dictating machine by the PBX operator.

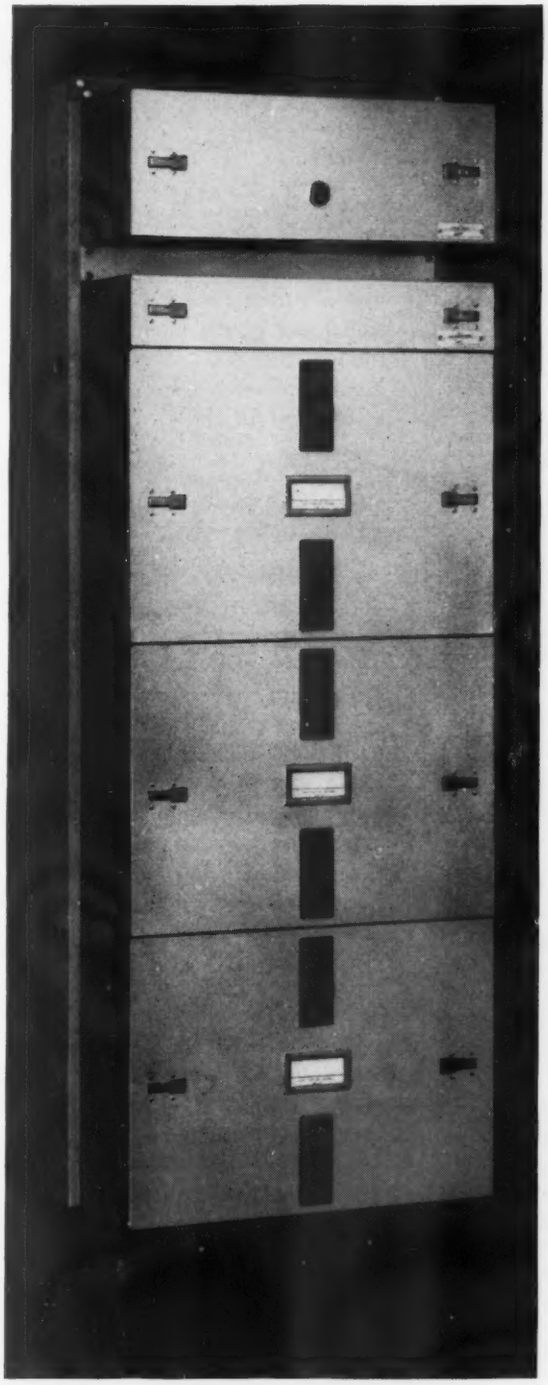
The present status of this service is experimental and it is not available at the present time for public offering. The Bell Labs have designed, built, and are currently field testing equipment that, while basically the same, has been refined and improved so that the user may correct errors, or play back the recorded message simply by dialing other combinations of digits.

In some spots, the commercial special service people are hopeful that the Bell System model will soon be ready for manufacture. The demand for dial-and-dicate equipment is very much in evidence and there is every indication that this demand will become greater once the advantages are generally known.

Automatic Electric

LEADERS IN CARRIER COMMUNICATION

Lenkurt



Lenkurt Type 33 "stackable" carrier telephone system, available with dial or ring-down signaling. Compact rack mounting assures easy installation and maintenance.

Get *"EXTRA REVENUE" CHANNELS* with *Lenkurt* Carrier

Now, with Lenkurt Carrier you can reach
that distant subscriber who wants private-line service
—or that promising but "out-of-reach" paystation location.
Just run a drop to the nearest toll line
and Lenkurt Carrier will take the extra circuit
into your exchange.
Simple, low-cost Type 33 Lenkurt Carrier
provides one to three individual channels
—and it's economical for distances as short as ten miles.

This versatile carrier system can also give you
additional trunks between exchanges.
You may install it one channel at a time, or
add the two higher-frequency channels
to lines already equipped with single-channel systems.
You can drop channels,
specify the type of signaling you need,
and provide voice-frequency carrier telegraph
on the same channels without interference.

Get full details on widely-used Type 33 Lenkurt Carrier.

Send for Bulletin 33AP20 today!

Manufactured for

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
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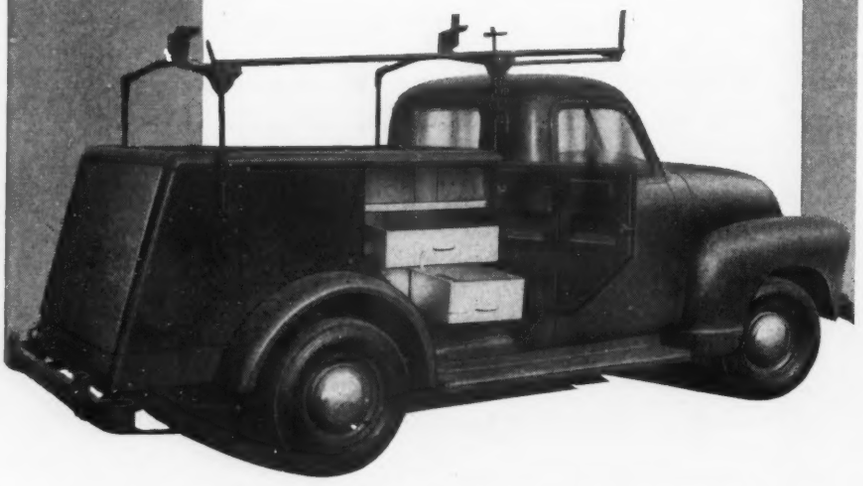
1033 West Van Buren Street, Chicago 7, U. S. A.

YORK-HOOVER

MODEL 201U76

new LIGHT DUTY SERVICE INSTALLATION BODY



WHAT THE MODEL 201U76 BODY WILL DO FOR YOU...

Light duty service work must be fast and efficient. Materials and tools must be readily accessible. That is why the new York-Hoover Model 201U76 Body was designed . . . especially for your light duty service work . . . for your convenience . . . for quicker, better service. Efficient design and sturdy construction, combine to provide this faster, better service for you . . . at less cost.

Write us today regarding your light duty service problems. We will be glad to provide you with all the details, including earliest possible delivery dates of the Model 201U76.

Bulletin No. 930 contains all the facts about our Model 201U76 Body. Write for your copy today!

1952...OUR 60TH ANNIVERSARY YEAR

YORK-HOOVER CORPORATION
YORK, PENNSYLVANIA

Tid Bits

Telephones Yield Harvest

In Inglewood, Cal., five hundred and fifty pay telephones in the Inglewood-Westchester area paid off like that many synchronized slot machines recently.

Coins deposited in the telephones during an hour and 22 minutes of service failure were held in suspense in the instruments. Then when service was restored the coins all were released simultaneously and they rolled out of the telephones as though the jackpot had been hit at the same time on every instrument in the Orchard exchange.

The word spread like wildfire among the area's small fry.

Super Salesman

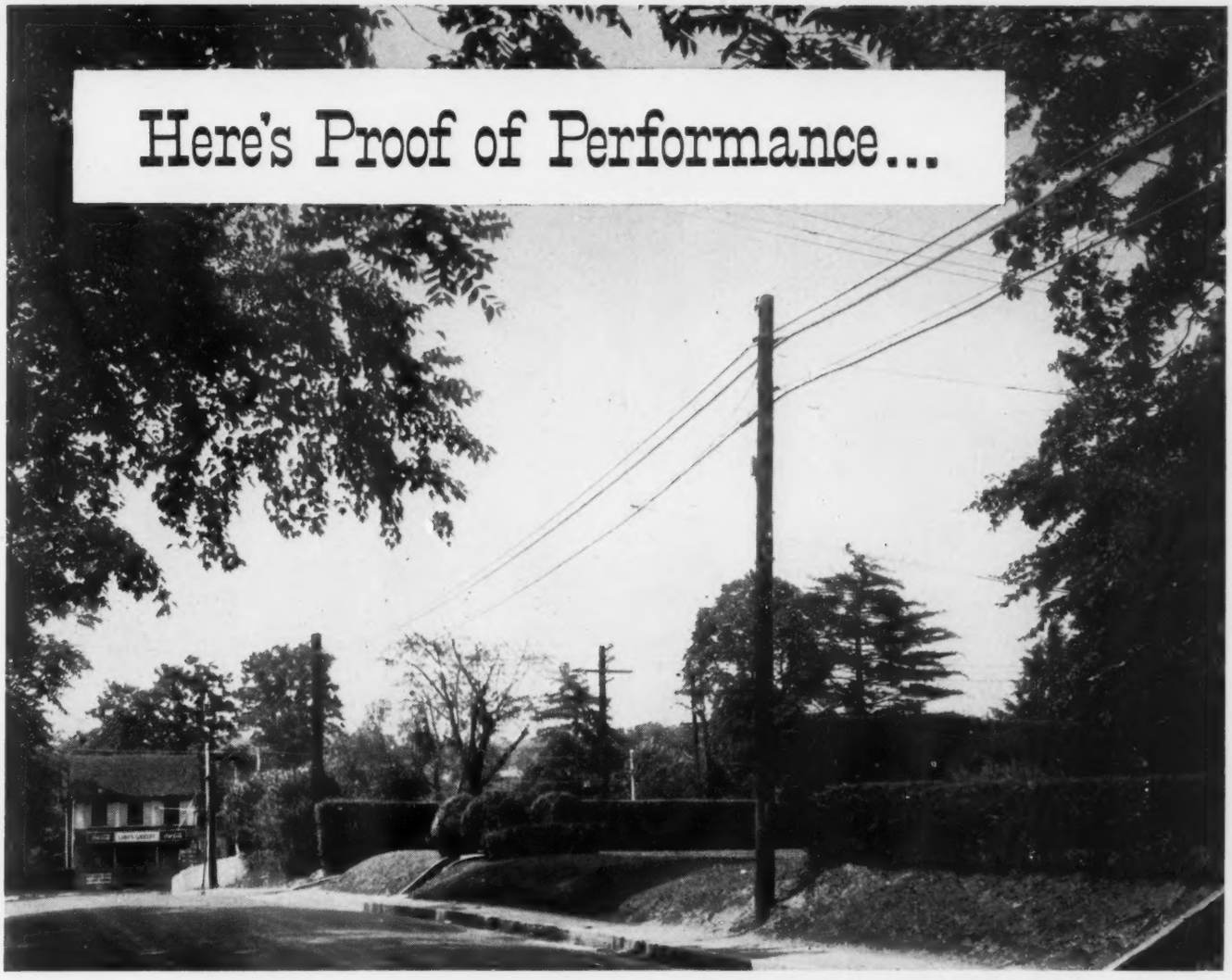
In Caruthersville, Mo., when directory salesmen sold nearly everybody in town somespace, the directory sales manager jokingly offered to buy a ten dollar hat for the man who made a sale to the jail. One salesman did and demanded his prize. And what does the Caruthersville jail advertise? Visitinghours!

Real McCoy

In Houston, Tex., actors believe in realism. A Little Theater group borrowed a coin telephone from the Houston office as a prop for a scene in "Kiss Me Kate" in which several calls are made. When they returned the telephone after a month's use on the stage, the coin box jingled with nickels.

Paid In Full

In Lubbock, Tex., the business office received the following from a Lorenzo, Tex., subscriber. "Enclosed is a check for $1.09 and my bill for 24 cents. The additional 85 cents was found in a pay telephone at Texas Tech. This settles my conscience and the bill I have owed."



These pressure-creosoted poles on Paradise Avenue in Baltimore were installed in 1930.

Chesapeake & Potomac is counting on 40 years of service from its 39,000 pressure-creosoted poles in Baltimore

● When supplies of native chestnut poles began to diminish rapidly in the 1920's, the Chesapeake & Potomac Telephone Co. of Baltimore City turned to pressure-creosoted southern yellow pine.

Today, the Company has 39,000 of these pressure-creosoted poles in its area, and is using them exclusively in replacements and extension of service to new subscribers. The first pressure-creosoted poles went into service in 1929, and the Company estimates service life will be at least 40 years.

Inspections of the older pressure-creosoted poles have shown such good results that detailed periodical inspections are not considered necessary or economical at this time.

When you choose a wood preservative, let long service records like this be your guide. They are the main reason why the wood preserving industry is using Creosote Oil at the rate of more than 200 million gallons a year.

Creosote Oil contains not one but many compounds whose toxicity and permanence ward off attack by such wood destroyers as termites, fungi, dry rot and marine borers.

When you use treated wood, be sure it is pressure-creosoted with U·S·S Creosote Oil. It is the product of continuous processing in the world's largest tar distillation plant. For complete information, contact our nearest Coal Chemical sales office or write directly to United States Steel Company, 525 William Penn Place, Pittsburgh 30, Pa.

U·S·S CREOSOTE OIL

2-1930

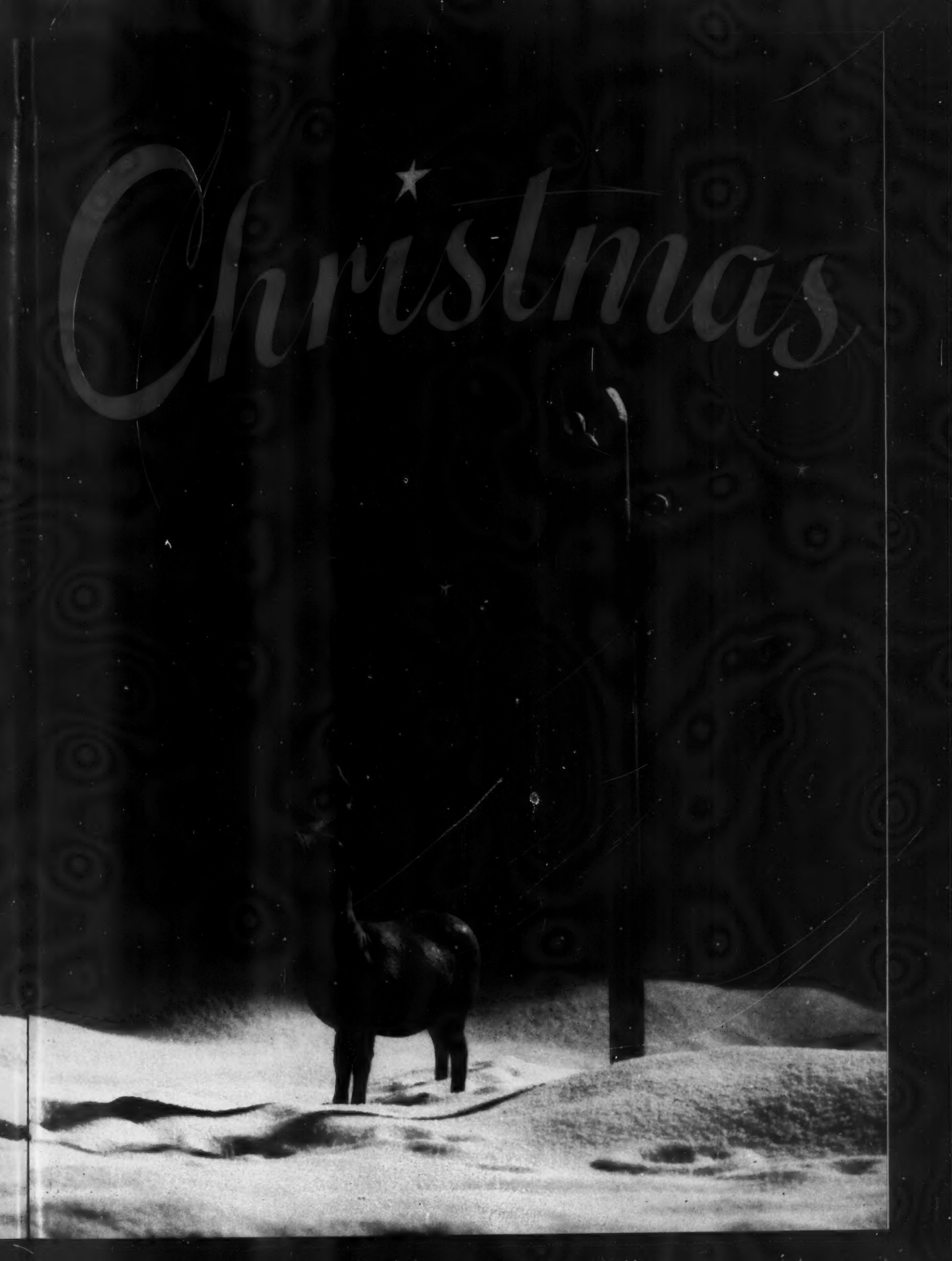
UNITED STATES STEEL

KELLOGG

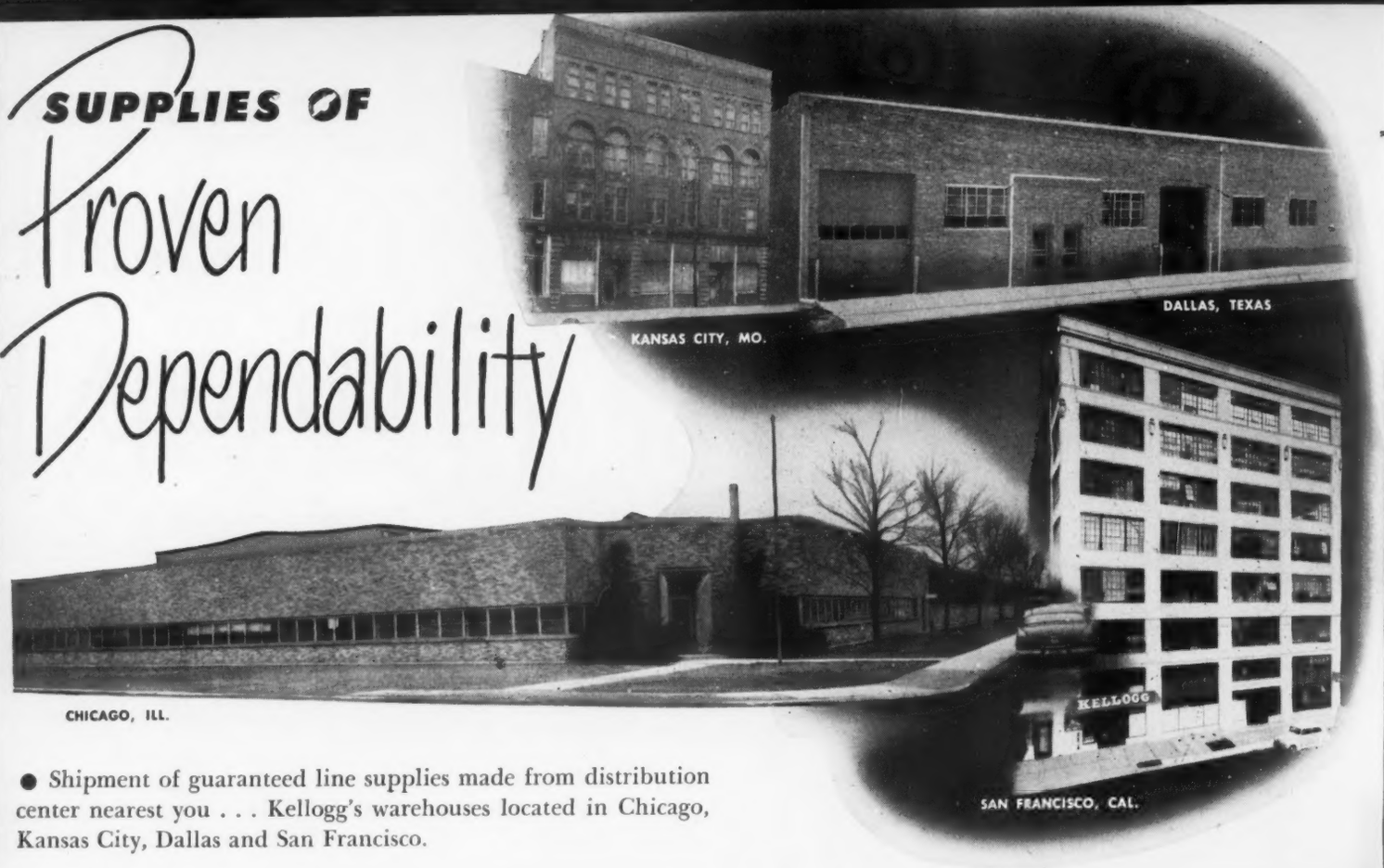
An IT&T Associate

An Associate of International Telephone and Telegraph Corporation

KELLOGG SWITCHBOARD AND SUPPLY COMPANY


Christmas

SUPPLIES OF Proven Dependability



● Shipment of guaranteed line supplies made from distribution center nearest you . . . Kellogg's warehouses located in Chicago, Kansas City, Dallas and San Francisco.

The following nationally-known manufacturers of supplies for the independent telephone field are participating in the 1952 Kellogg Co-operative Campaign.

American Creosote Works, Inc.

American Structural Products Co.

Ansonia Electrical Company

Bishop Manufacturing Co.

Boston Woven Hose and Rubber Company

Churchill Cabinet Company

Continental Cross-Arm Co.

Copperweld Steel Company

The Electric Storage Battery Co.

General Insulated Wire Works, Inc.

Gould-National Battery, Inc.

W. A. Hammond Drierite Company

Indiana Steel & Wire Company

Kester Solder Company

Lorain Products Corporation

T. J. Moss Tie Company

National Carbon Company
A Division of Union Carbide and Carbon Corporation

National Telephone Supply Co.

Newman Manufacturing Company

Paragon Electric Company

Raytheon Manufacturing Co.

Ray-O-Vac Company

Reliable Electric Company

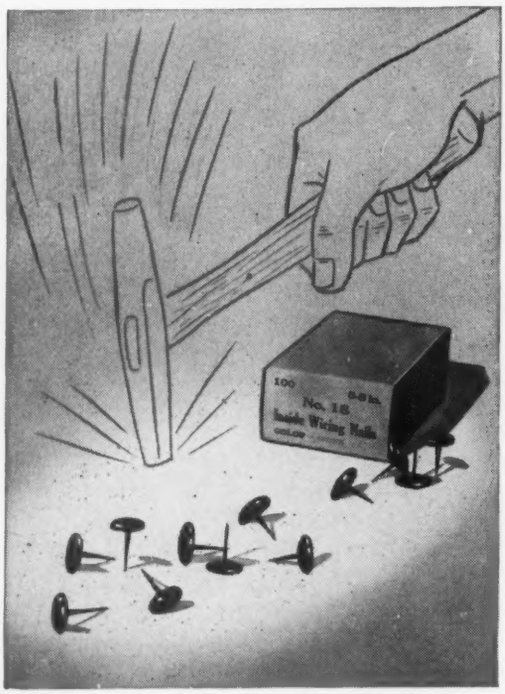
M. M. Rhodes & Sons Company

Schauer Manufacturing Corp.

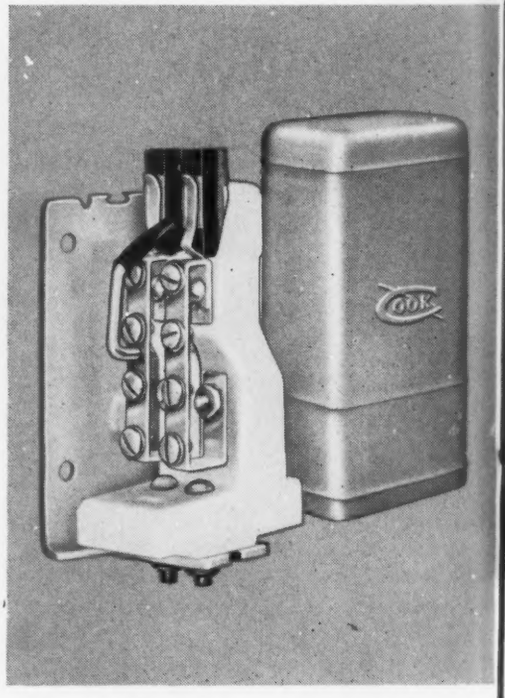
Taca Cable Stripper Manufacturing Co.

Vulcan Electric Company

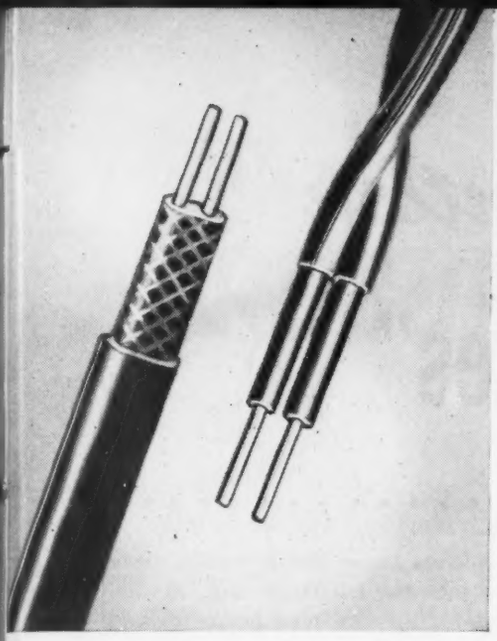
Weller Electric Corp.



Why Do It the Hard Way? Making neat installations is easy—with Rhodes Wiring Nails! Designed for telephone work—quality insured by driving, bending, withdrawing and immersing tests. Made by RHODES & SONS CO., in several colors and pin-lengths.

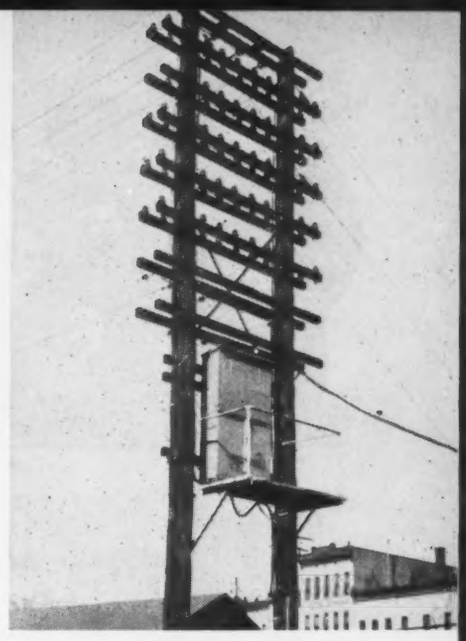


Save Drop Wire with the Cook Party Line Junction. Ideal for terminating and protecting the cable pair drop, the cable pair, and distributing four party line drops. Porcelain base, with zinc non-corrosive cover. Made by COOK ELECTRIC COMPANY.

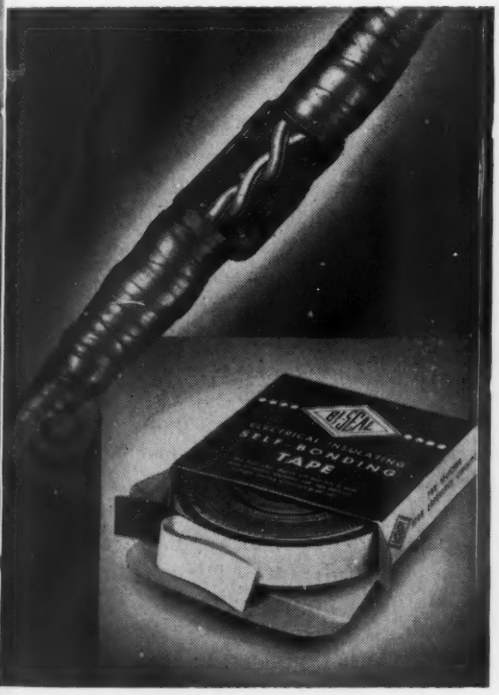


Lasts 30% Longer! LONG service life and low plant costs go hand-in-hand with the installation of ENDURPRENE—The Neoprene Drop Wire available in Copperweld and Bronze. Flexible, easy to handle. GENERAL INSULATED WIRE WORKS, Inc.

Improve Your System with Copperweld. Non-rusting Line Wire provides the best conductance of any high strength conductor. Has great strength for safe, economical, long-span lines—plus the ruggedness to withstand severe weather. COPPERWELD STEEL CO.



Economy in Overhead Construction is assured when crossarms by the CONTINENTAL CROSSARM COMPANY, INC., are a part of your wire and pole installation. Fully seasoned American woods—built to sound standards of dependability.



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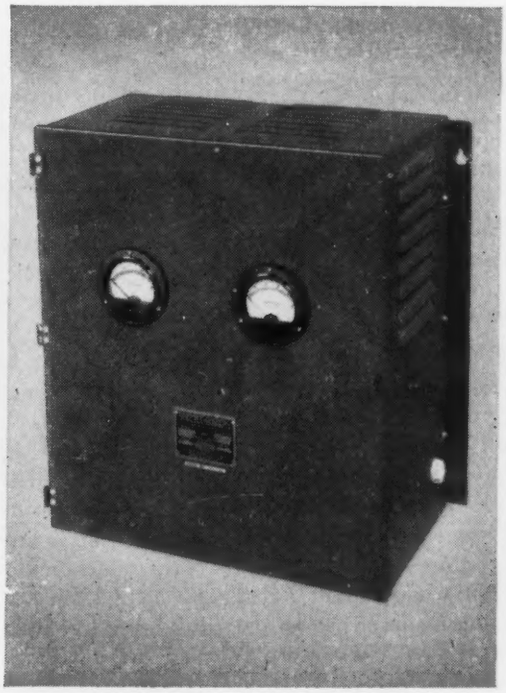
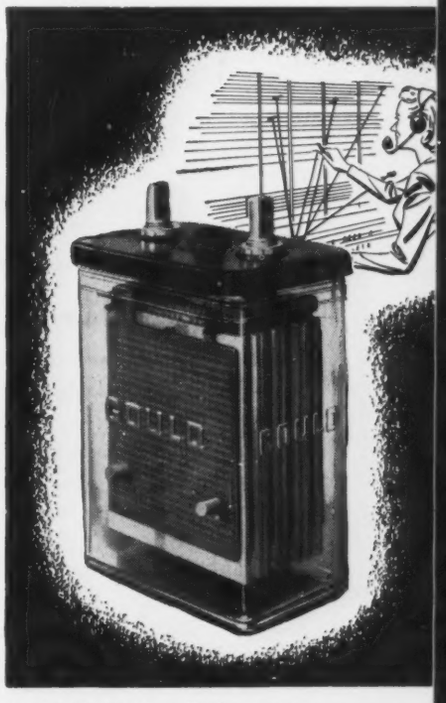


First Choice of the Telephone Industry! The Raytheon RectiChargeR is fully automatic, maintains constant output voltage regardless of variation of load and line voltage. Never overcharged or undercharged, batteries last longer. RAYTHEON MFG. CO.



Outstanding Battery Performance is yours whe you choose Gould Plante Batteries. Thick grooved, pure lead positive plates giv many years of trouble-free service! Made b GOULD-NATIONAL BATTERIES, INC They're the finest money can buy.

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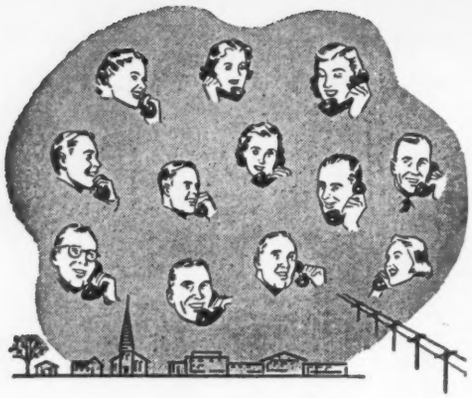
410 No. Syndicate Ave., "Midway Area", ST. PAUL, MINNESOTA

BRANCH OFFICES:
406 South Main Street, LOS ANGELES 13, CALIF.
720 S. W. Washington St., PORTLAND 5, OREGON



Convention "Quotes"

Adequate Accounting

THE NEED TODAY for an adequate accounting system is as great, or even greater, than it was years ago and while it has been possible to cause some companies to realize the need there are many in which our efforts have been in vain. Some do not seem to realize the need, others seem to realize it at the moment and then fall back into the same old practice, while others just don't seem to be disposed to do anything about it.

I don't know of any way to improve the situation except to keep reminding you of it at every opportunity for, unless we receive complete cooperation, there isn't much in the way of permanent improvement we can accomplish alone.

We can keep talking about proper telephone accounting and trying to impress you with its importance, but it is rather like leading a horse to water but you can't make him drink. — *Homer L. Thorp, chief accountant, Public Service Commission of Missouri.*

"Educate the Subscriber"

ONE OF THE most difficult jobs encountered by the information operator, especially in the larger exchange, is providing an incoming toll operator with the information as to whether a certain party has a telephone, and if he does not whether he lives in an area where messenger service is furnished, or whether he can be reached by calling a near-by telephone. Therefore, it is most important that proper street addresses, rural route numbers, or any other information which might be of value, be obtained from the telephone subscriber at the initial contact by the commercial office. This information, of course, should also be used in the preparation of the telephone directory.

An educational program, with the thought in mind of helping the subscriber get the most value out of his equipment and service, should be a continuing one by the Commercial Department. We believe that such an educational program can be very effective when its objective is to educate the telephone user how to place calls, especially in dial offices. The proper procedures in placing both local and toll calls must be followed if the calling subscriber is to reach the desired telephone number.

In addition to the instruction pages generally placed in the telephone directory, the Commercial Department can make the traffic job easier by using newspaper ads, personal contacts, and bill stuffers to keep the subscriber informed, and to remind him to use the directory, speak distinctly and directly into the telephone and, in dial offices, be sure to wait for the dial tone before dialing the desired number. — *Miss Nannie Bartee, Ohio Convention.*

"Pleasing Service"

IN PROMOTING pleasing service to the customer and building "better public relations" the first responsibility of management is to insure that the supervisory group is qualified to command respect in leadership, which is required of them along inspirational and instructional lines. This, of course, is a matter of proper selection and training of supervisory people.

Important considerations in the selection of supervisory people are: — (1) General attitude; (2) Job knowledge; (3) Service Enthusiasm, and (4) Capacity for leadership.

Observations as to a particular operator's attitude and dealing with customers while as an operator is a good indication as to her qualifications as a candidate of supervisor, who will be required to assist and inspire other operators.

The operator performance on "tone of service" is largely dependent upon the degree to which supervisors visualize the possibilities; the training of supervisors must be adequate to a clear recognition that service must be pleasing, as well as technically satisfactory.

To me, and I am sure to most of you here, no matter how well an operator prepares her tickets or handles her cords, unless she is able to please, or at least attempts to be helpful, she is not performing her duty to the best advantage. "Operators" and "supervisors" should recognize that service is not good in a broad sense unless it is rendered in a friendly, attentive and courteous manner.

The supervisor or instructress cannot obtain the desired results for pleasing "tone of service" if emphasis on this phase is deferred until the mechanics of operating are mastered. Ability to recognize opportunities to give certain calls individual handling is fully developed *only* as the operator gains in experience. The operator's judgment, as to what action will be in keeping with a customer's desires, comes only after constant effort and emphasis in all training contacts.

Nevertheless, initial training does offer an opportunity to develop an early consciousness to "tone of service" and to define objectives to a degree which will fulfill the requirements of the best majority of calls — laying the foundation as the *student* progresses. — *Miss Mildred Marvin, Ohio Convention.*

it's the RESULTS that COUNT!

WE'RE PROUD OF OUR RESULTS! Honestly, we don't mean to brag—well, maybe a little—but you can hardly blame us when you realize that we are obtaining the MAXIMUM REVENUE from advertising on every directory—whether large or small. Then, too, our customers will tell you that we have MAINTAINED the VERY BEST PUBLIC RELATIONS with their subscribers.

WE'RE OLD AT THE BUSINESS—42 years, to be exact—but because of our specialization in the directory field, we have kept geared to today's trends and patterns, and with modest pride have produced outstanding results on all directories.

If you are not already one of our satisfied customers, we invite you to inquire about our complete service.

Call or write for details TODAY.

TELEPHONE DIRECTORY ADVERTISING EXCLUSIVELY

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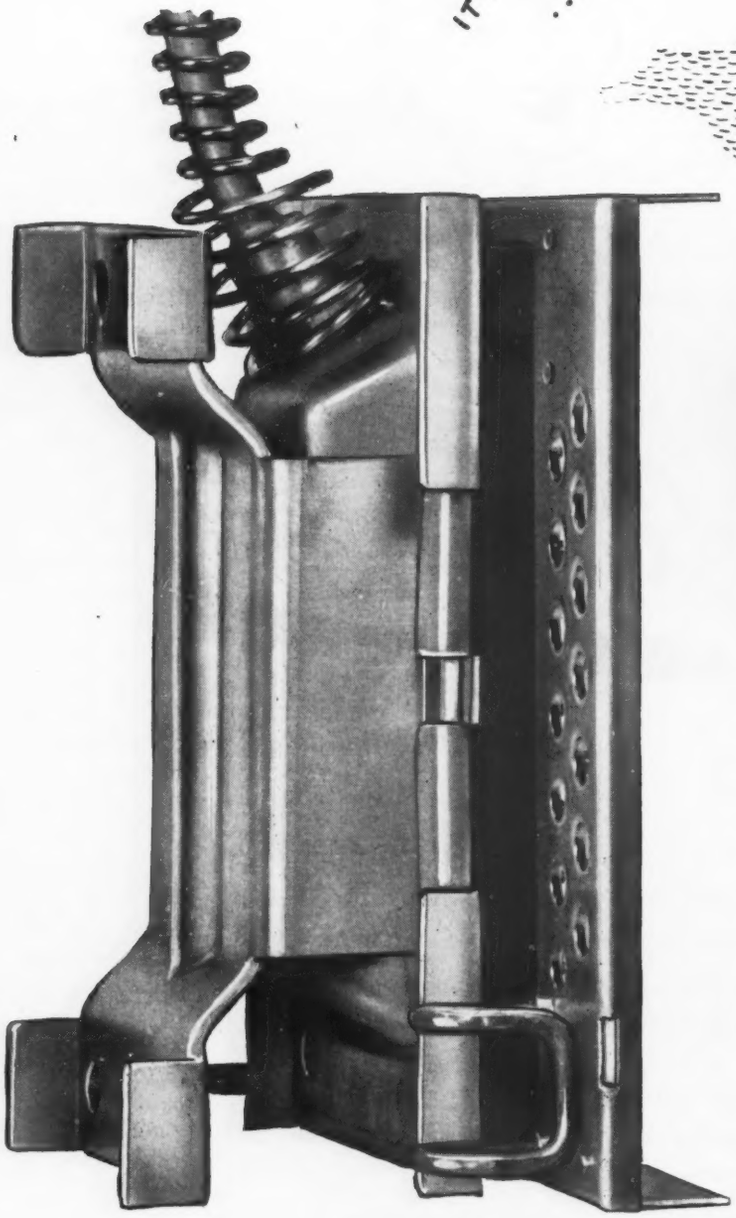

The "RU" was field developed

. . . and is field proved. The basic design of this reversible, unprotected cable terminal is more than a designer's dream. It offers ease of installation, rugged construction for long service and is precision built for economy. No . . . the "RU" is not a new product, but a well established, widely preferred terminal equal to the most demanding specifications. Examine its individually superior features that combine to insure weather-proof, trouble-free service and, therefore, maximum economy. Standardize on "RU's", another Reliable product.

RELIABLE ELECTRIC COMPANY
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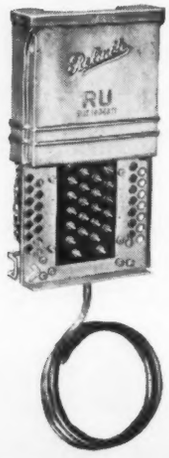

Reliable

Telephone Protective and Terminal Equipment for all Station, Line and Central Office Needs.

OVER 45 YEARS SERVICE TO THE TELEPHONE INDUSTRY

70,000,000 Telephones in 1961

IT IS A NATURAL assumption that the unprecedented demand for telephone service, existing since the end of World War II, will at some time level off to a more normal rate.

A question of profound importance to the telephone industry, which must supply the money, manpower and materials for meeting the demand for telephone service, is that of when this heavy demand will level off, and what the then level will be.

There are some signs that may possibly indicate that this new level already exists, and that it is a very high one. If that is the case, then — barring all-out war or depression — the telephone industry of the United States has ahead of it the biggest job ever done in communications any where and at any time.

For many years the number of telephones per 100 of population has been increasing, even though the population was also increasing.

In 1931, for instance, there were about 15 telephones per 100 population. In the decade following, while population increased about 7.4%, the number of telephones increased about 19%, and to some 18 per 100 of population.

Then, in the ten following years to the end of 1951, population increased by 16%. But, in that same period, the number of telephones almost doubled, and became nearly 30 per 100 of population.

At the beginning of that ten year period there were in service in this country some 23,500,000 telephones. At the end of the period there were some 45,600,000 telephones. And, since there were limitations on growth during the war years, most of this increase took place in the six years beginning with 1946.

During several of those years the Bell System (including its two affiliated companies, in Cincinnati and southern New England) added more than 3,000,000 telephones a year and it averaged more than 2,500,000 added telephones a year. And the most complete figures available indicate that the Independent companies averaged around or more than 400,000 telephones a year, net gain, during that same period.

During the last full year — 1951 — Bell System net gain of telephones was around 2,100,000, and Independent net gain appears to be around 500,000.

During the first half of 1952 the increase in telephones was — for the six months and for both Bell and Independents — about 1,250,000 telephones.

Obviously, this demand for more telephone service is no "flash in the pan." Now, almost seven years after the end of the war, telephones are still being added at the rate of 2,500,000 a year.

It has been estimated that the population of the United States, some 154,000,000 in 1951, will be 175,000,000 in 1961. It is also estimated that the number of employed people will — again barring full-scale war or depression — jump from about 64,000,000 in 1951 to nearly 68,000,000 in 1961.

In view of those and many other facts — too numerous to outline here — regarding the prospective growth of this nation, it seems very possible that, for a time at least, the normal rate of telephone growth in this country is around 2,000,000 telephones a year, or between that figure and 2,500,000.

Either of those figures, or any figure between or near them, creates a colossal job for the telephone industry during the next decade or longer.

It can and will be done provided, of course, the factors necessary to such a vast expansion are available. Those include rates for service sufficient to produce the net earnings that must be available to make possible the tremendous amount of new financing that must be done to pay for the job.

The
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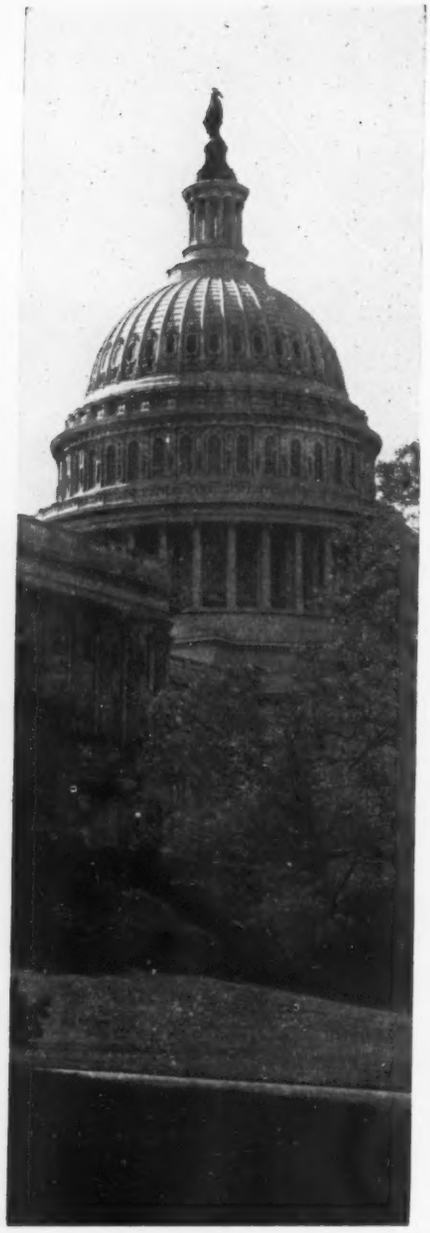
Season's Greetings...

Because the Telephone shares with Greeting Cards the pleasant duty of transmitting Christmas wishes, we give it an honored place in this message. From us who make it—to you who maintain its service—go the warmest sentiments of this happy season.

Stromberg-Carlson



Washington Bureau Reports

By ROLAND DAVIES and FRED HENCK

REA outlines its policies on telephone loans involving towns of over 1500 population . . . Washington observers expect REA loan funds to be exhausted early in 1953 . . . Domestic Communications Operating Industry Advisory Committee meets with NPA. Committee recommends that whenever it is determined that supply and demand are in balance controls should be eliminated.

THE POLICIES of the Rural Electrification Administration in deciding whether to approve telephone loans involving towns of over 1500 population have been outlined to TELECOMMUNICATIONS REPORTS, Washington correspondents for TELEPHONE ENGINEER, by REA Administrator Claude R. Wickard.

Mr. Wickard declared that a controlling factor is whether, considering the system as a whole, more urban or more rural people will be served by the proposed REA-financed facilities.

Generally speaking, he pointed out, REA considers a loan involving a town of more than 1500 population to be primarily for the purpose of providing rural telephone service if more rural than town residents are to be served by the system. The final determination of whether an approved telephone loan allocation should be finalized, on the basis of interpretation of the rural telephone act, rests with the Department of Agriculture Solicitor's office.

As this column was written, a decision still was being awaited on the largest loan allocation yet made by REA(to the Hoosier Telephone Cooperative). The Indiana Public Service Commission had held hearings on the co-op's request for a certificate to serve the territory involved, and reportedly was split on granting the authority, with one commissioner on each side and one "on the fence."

The co-op is proposing to buy the "west side" properties of the John T. Detchon estate, a group of companies now serving more than 13,000 telephones. It would obtain an REA telephone loan of more than $6,000,000 under the proposal. Included in the projected service area are four towns around or above the 1500 population dividing line.

The REA Administrator said he understands that "some sort of a proposal" is being considered under which a commercial company would acquire the facilities at Attica, Ind., the largest town in the Hoosier co-op's proposed territory, and possibly a couple of other points of over 1500 population, but that negotiations would have to await acquisition of the whole property by the co-op, under the terms of the accepted bid submitted by the co-op.

Mr. Wickard said that REA "does not want to get into towns of over 1500" but has been required to do so by the circumstances of a number of loan applications. He said that a total of 26 towns of over 1500 population are involved to date in REA loan approvals, 14 of which are served by commercial companies. The other 12 involve acquisitions of existing properties, he declared.

He said that various borrowers, in setting up their loan proposals, have found that it is necessary from an economic or operating standpoint to locate all or some of their central office equipment in over-1500 towns. Since REA, under the law, must have a "first mortgage" on the property put up as security for its loan, and cannot hold a "second mortgage." it is usually impossible for arrangements to be made so that REA finances the rural portion of the property and other financing is obtained for the part of the equipment located in the town, he said.

"Small organizations," Mr. Wick-

ard contended, "should not be denied REA financing merely because a part of their service happens to be in a town of over 1500 population."

As an example of REA policy, the Administrator recalled the proposed loan allocation for a commercial company with headquarters in Navasota, Tex. He said the company originally received a loan for a part of its territory in rural areas. It had a substantial number of held orders throughout its territory, he recalled, and ultimately worked out plans for large improvements throughout the system, to be financed by another REA loan.

Mr. Wickard said that his agency was forced to conclude that the amount of money proposed to be spent in the town area was disproportionate, that it would be a case of the "tail wagging the dog," and the larger loan request therefore was refused.

REA is turning down applications for loans primarily for the purpose of financing facilities in towns of over 1500, he declared, but cannot refuse feasible requests when rural service is the primary objective. To decide which is the objective, he said, the proportion of rural vs. town subscribers is the major yardstick.

Mr. Wickard declared also that when telephone facilities are partly refinanced, on the basis of an REA loan to expand and improve service in rural sections, the agency must have a "first mortgage," and cannot make the loan otherwise.

COMING CONVENTIONS

"There has never been a time . . . when it was more necessary for telephone people to take common counsel upon common problems."

Louisiana Telephone Association, Jung Hotel, New Orleans, Feb. 12 and 13.

Minnesota Telephone Association, Hotel St. Paul, St. Paul, Feb. 17, 18 and 19.

Kentucky Independent Telephone Association, Phoenix Hotel, Lexington, Mar. 3.

Texas Telephone Association, Baker Hotel, Dallas, Mar. 9, 10 and 11.

Nebraska Telephone Association, Cornhusker Hotel, Lincoln, March 24, 25.

Iowa Independent Telephone Association, Hotel Fort Des Moines, Des Moines, April 7 and 8.

Illinois Telephone Association, Hotel Pere Marquette, Peoria, Apr. 15, 16, and 17.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 12, 13, and 14.

United States Independent Telephone Association, Executives' Conference, Edgewater Beach Hotel, Chicago, May 25 and 26.

Pennsylvania Independent Telephone Association, Pocono Manor Inn, Pocono Manor, June 3 and 4.

Oregon Independent Telephone Association and Washington Independent Telephone Association (Joint Convention), Chinook Hotel, Yakima, Wash., June 12 and 13.

California Independent Telephone Association, Ambassador Hotel, Los Angeles, June 18 and 19.

"There is no quick, easy way to the acquisition of knowledge . . . but at a convention there will be ready-made answers to perplexing problems."

Material Controls

LOOKING to the eventual expiration of the government's controlled materials plan, members of the Domestic Communications Operating Industry Advisory Committee, at a meeting in Washington with National Production Authority officials, presented their views as to what measures should be taken by the government.

On the subject of a standby organization to continue after controls are ended, to be prepared for another emergency, a majority of the committee, which is composed of representatives of Bell System and Independent telephone operating companies and the Western Union Telegraph Co., said that such a group would not be required because a new organization, corresponding to the present NPA Communications Equipment Division, could be set up quickly. The minority view was that any new emergency might come very quickly, and that a skeleton group would greatly speed setting up a full organization.

A majority also took the position that after the controlled materials plan is ended, it will not be necessary for the industry to supply NPA with information on materials usage because the industry has such information readily available. The other expression was that such information would be desirable to have on a continuing basis.

The advisory group told NPA that the backlog of unfilled orders for telephone service will be reduced somewhat, but not eliminated, in the next 12 months, and they also said they expect to reduce the shortage of long-distance circuits and install more equipment in 1953 than in 1952 in practically every category.

The committee also: recommended that because of the unique problems of the communications industry, the CED should be kept separate from other utility and industry divisions.

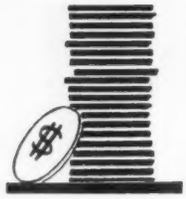
Expressed satisfaction with NPA order M-77, dealing with communications, and representatives of small companies said a recent amendment which increases amounts of controlled materials obtained by self-certification had benefited them.

Recommended that whenever it is determined that supply and demand are in balance, controls of materials should be eliminated.

Urged that, regarding the second quarter of 1953, applications for controlled materials should be processed and allotments issued unless between now and the issuance of allotments, conditions develop to remove the need for them.

C. W. Potter, CED Director, presided at the meeting, which was at-

(Please turn to page 54)



The big puzzle facing any utility management is — how to make due allowance for the depreciation in the United States Dollars.

The Markets For New Capital

By A. W. KIMBER

THE GREATEST puzzle now facing any utility management is how to make due allowance for the depreciation in the United States dollar. Everybody knows that the dollar now will not buy what it used to buy, that it takes more dollars to buy the same things, or to buy a similar thing to perform the same service.

Where a company, for example, has in service one switchboard installed say ten years ago, and undertakes now to put in a duplicate, the problem is presnted in clear cut form. If the old switchboard cost $1,200.00, the new one will cost $2,400.00, and at the same service rates it will earn the same amount of income, say $72.-00 per annum. That is six percent on the $1,200.00 but only 3% on the $2,400.00.

But the old switchboard does not earn except on its "value" after depreciation, and such value can be assumed to be say 70% of the original cost, reducing the "net investment" in the facility to $840.00, so that the company makes only 6% on this figure, or a little over $50.00 per annum. And nobody now is going to scrape up $2,400.00 to invest it for a return of $50.00 per annum, yet that is just what many of the state commissions expect people to do.

Enforcement of this principle by the commission means that it confiscates the property of the company, to the extent of the deficiency in revenue, the capitalized value of the revenue lacking.

Correction of this distortion could be made very simply through the imposition of a surcharge on bills to customers, a surcharge for the amount of the revenue deficiency. This would be subject to taxation, like any other income, but this would be imposed as a separate charge and the proceeds of the surcharge allocated to a specific purpose. The account might be called a "Replacement and Retirement Reserve"; it would have nothing to do with depreciation, for depreciation takes place in plant or property, and this surcharge is not imposed for the purpose of absorbing or offsetting a failure in property; if it should come to be so regarded, the danger is that it will be so applied. If the Commission should see a big credit item in the company's balance sheet, together with a correspondingly large cash balance, the temptation to do something about it might prove irresistible. The special charge is imposed to absorb or offset a decline in the purchasing power of the United States dollar, and should be so linked to the dollar that there will be no mistaking it.

Thus the amount of the surcharge can be fairly computed as a percentage of the amount billed to the subscriber periodically. The precise amount will be determined in part by considerations of the size of the existing reserve in relation to the plans of the company for capital expenditures over the near term. The special amount annually might be ten per cent of the revenue, which would mean a surcharge of 20%, for the government will take half of it by way of income tax. But the total charge should be labelled for what it is: "Special Charge for New Material or Replacements."

An event which was widely heralded as a new practice in the distribution of common stock was the introduction in November of the new form of advertisement or "identifying statement" which the Securities & Exchange Commission permitted to be used in that connection. It was first employed in the sale of $3,500,000 of convertible preferred stock of the Suburban Propane Gas Co., which went into registration October 24 and was scheduled to be marketed on November 20th. The preliminary adverisement by Eastman, Dillion & Co., the underwriters, was the first instance of such a pre-offering announcement to the public at large. The authorization by the SEC of the use of this short form prospectus was the first major move by the agency to make available to investors full information about offerings of securities.

Another instance of the use of this short form was its employment in connection with the offering of Com-

monwealth Edison 1,155,730 shares of convertible preferred $25 par, but this was after clearance of the issue by the Securities & Exchange Commission; it saved money but did not speed up the proceedings.

Bonds and Debentures

THROUGHOUT the period July-October the new issue bond market was fairly dull, not many new issues of any size. There were some exceptions, notable among which were 3,180,000 shares of common stock for Socony Vacuum Oil, $40,000,000 Tennessee Gas Transmission and $15,000,000 Arkansas Power & Light 30-year bonds. This big shot was more than the market could stand at the time and the bonds were very slow moving, they were around for more than two weeks before they were cleaned up.

At the beginning of October the Washington Water & Power deal came through, $30,000,000.00 of 1st 3½% at 101.875 to yield 3.40%, and a week later $60,000,000.00 of United Gas 4.375% on a 4.20% basis and the International Bank 3½% debentures at 98 to yield 3.65%. These last two met with a more favorable reception and moved out rapidly. But aside from these issues, which were more than usually favorably priced, the market really was dead.

The state and municipal market in the meantime had been very dull. One reason for this was the uncertainty regarding the $170,000,000.00 of Public Housing Bonds, due for bidding September 23. As long as this issue was hanging over the market, the state of uncertainty that existed was accentuated. For more than six months the big buyers, that is the life insurance companies, had been reluctant to bid for anything, they did not need to do so because they were offered an ample supply of mortgages and of other direct placements, they did not have to steam up for the few open market issues that were offered. An exception of course was the smaller issues.

Another factor in the market during October was the sales by the British government of large volumes of American securities, chiefly stocks of the gilt edged class. This selling had the effect of further sagging of prices, slow but steady and certainly not conducive to buying of the new

TABLE I
Telephone Company New Issues
Offerings September-November 1952

Bonds and Debentures	Amount	Price	Yield
September 1952			
York Telephone & Telegraph (Pa.) 1st 3.375% B 1982	$ 1,245,000*	100.00	3.375%
Associated Telephone Ltd. 1st 3.75% H 1982	10,000,000	102.552	3.60 %
General Telephone of Ohio 1st 3.625%	2,000,000	100.00	3.625%
October 1952			
Middle States Telephone of Ill. 1st 3.75% G 1977	500,000*	100.00	3.75 %
Hickory Telephone Co. (N.C.) 1st 4.25% 1977	1,000,000*	100.00	4.25 %
Northern Ohio Telephone 1st 3.50% 1982	1,800,000	100.00	3.50 %
Mutual Telephone (Honolulu) 1st 3.50% 1982	2,500,000	100.00	3.50 %
North-west Telephone (B.C.) 1st 5% B 1972	500,00*	100.00	5.00 %
November 1952			
Pacific Tel. & Tel. Co. Deb. 3.25% 1979	35,000,000	102.176	3.13 %
Elyria Telephone, O. 3.375% 1977	1,400,000*	100.00	3.375%
Rochester Telephone Corp., N. Y. 1st 3.50% 1987	5,000,000*	100.00	3.50 %
General Telephone of Illinois 4.25% Debs. 1977	3,000,000*	100.00	4.25 %
General Tel. of the Southwest (Tex.) 1st 3¾% 1952	2,000,000*	100.00	3.75 %
General Telephone of Penna. 1st 3.50% 1982	3,000,000*	100.00	3.50 %
Preferred Stock	**Number of Shares**	**Price**	**Yield**
September 1952			
Associated Telephone Co., Ltd. 5% pfd. $20 par	57,500	20.00	5.00 %
October 1952			
No offering in this classification			
November 1952			
Elyria, O. Telephone 5% Elyria pfd. $50 par	9,500	50.00	5.00 %
Common Stock			
September 1952			
General Telephone Corporation Com. $20 par (2)	350,000	33.00	6.06 %
Okanagan Telephone Com. $5 par (0.40)	30,770	7.00	5.70 %
October 1952			
New England Tel. & Tel. Com. $100 par (8)	232,558	100.00	8.00 %
November 1952			
Elyria, O. Telephone Com. no par (1)	2,122	7.476	13.35 %
Florida Telephone Corp. Com. $10 par (0.80)	25,500	11.75	6.80 %
Pacific Tel. & Tel. Co. Com. $100 par (7)	703,375	100.00	7.00 %
Southern New England Tel. Com. $25 par (1.80)	400,000	25.00	7.20 %

(*) Private Sale

offerings. As of October 20th approximately 75% of new common stock offerings were selling under their offering price.

A week before the election the stock market made one of its quick turns. An offering of 356,717 shares of Anheuser Busch was quickly snapped up, so was 104,104 shares of Corning Glass Works and 1,341,085 shares of Bank of America stock, the last mentioned representing the last holdings of Trans-America Corporation in this picture.

The municipal market at the same time staged a similar performance. It turned even more rapidly than it had previously slid off, so that by election time conditions were normal again.

There have been greater changes in the state and municipal market than in any other. The total assets of the legal life insurance companies have grown to an estimated total of 68 billion dollars at the end of 1951. The rate of growth in the assets of the life insurance companies from 1920 to 1950 was greater than that for the mutual savings banks, the savings and loan associations and the fire and casualty insurance companies, and also exceeded the rate of increase in commercial bank holdings of government securities and other long term earning assets.

The growth of funds available to the life insurance companies for investment has resulted in a considerable shrinkage in the importance of the traditional security markets, and in the reliance placed on the sales machinery of the investment banking houses in financing corporate capital expansion. A comparatively new mechanism for long term industrial financing, the direct negotiation between borrower and lender, has developed as a consequence of the collection of large pools of funds by the insurance companies and the necessity of keeping those funds fully employed. The influences conducing to this increase have been many and varied, but among them the most significant perhaps has been the increase in federal taxation. The sharp increases in the rates of taxation have laid a particularly heavy burden on wealthy individuals, including personal trust accounts; the net effect of the high taxes has been to favor tax exempt securities as the outlet for the funds of individuals, personal trust accounts and institutional investors subject to taxation, while corporate organizations became increasingly the outlet for institutional investors not subject to substantial taxation, especially the life insurance companies.

Worth Repeating

THE WORLD is divided into two classes — those who go ahead and do something, and those who sit and inquire, "Why wasn't it done this way?" — *Oliver W. Holmes.*

THOSE WHO stand for nothing are apt to fall for anything. — *Ernest P. Baker.*

The issue of long term municipal and state bonds had reached a volume in the last year or two which was fantastic compared with a few years ago. Prior to 1942 there was a period when it ran between $1 billion and $1.5 billion per annum, then during World War II it fell off. Since that time for three years, from 1947 to 1949 it was something over $2 billion, after which for a couple of years it was over $3 billion, this year it is running at the rate of about $4.7 billion, and for 1953 the figure usually mentioned is an output exceeding $5 billion. This is the supply of tax exempt bonds. They take the form of parkway issues, housing authority bonds and bonus bonds, these three categories including the major part of the supply. In addition of course there will be school bonds, highway construction issues (other than parkways), offstreet parking lots and the like.

The demand from buyers of municipals has been from trust funds, corporations, commercial banks, casualty and fire insurance companies, wealthy individuals and recently savings banks. Life insurance companies are out of the market; because they pay little or no income tax, they get no benefit from the tax exemptions, and the high price of municipals because of that feature is unattractive to them. Insofar as personal income taxes are concerned, the increase which became effective in 1951 amounting to about 10% is due to expire on December 31, 1952; in the case of corporations the excess profits tax is due to expire June 30, 1953, and it seems to have been rather generally felt that this tax would probably be allowed to die a natural death at that time. In addition to the excess profits tax, there was an increase in the corporation tax during 1951 from 47% to 52%, an increase which is due to expire March 31, 1954. If the Administration really means business in the matter of tax reduction the stage is set. In the case of commercial bank buying, casualty and fire insurance companies, wealthy individuals and savings banks, similar arguments apply, but in these cases also it looks as if the attraction of tax exemption will be less next year than it has been up to this time.

In other words, the outlook for state and municipal bond prices does not appear so rosy as it did. Supply and demand.

Stocks—Preferred and Common

THE NUMBER of preferred stock issues listed in our *Table I* is so small that no conclusions can be drawn from it.

The common stock market during the past three months, generally speaking, has been discouraging to the offering of new issues. Prices until the last couple of weeks have shown a tendency to sag, rather badly in some classifications, and new offerings have been few and small except for some outstanding companies.

In our *Table I* the only important offering was that of General Telephone Corporation. This company has had a fairly active record of common stock offerings, and always at advancing prices, they have all been successful. The other apparently large offerings in our list, namely New England Tel. & Tel., Pacific Tel. & Tel., and Southern New England Telephone were largely refunding transactions, large proportions of the outstanding stock having been held by American Telephone & Telegraph Company and most of the proceeds of the new issues going to repay debt to the parent. The reason for including them in our table is to show, by the record which will be published next month, how much of each offering was taken by the public and how much could not be sold on the terms offered.

REDUCES COSTS

all along the line

Copperweld NON-RUSTING Line Wire

GRIP-FLEX[38]

The Ideal Insulator Tie for Use with Copperweld Line Wire

It is a known fact, among the leading telephone and railroad men of the world, that Copperweld* Line Wire is unequaled for overall economy and performance.

In addition to life-long protection against corrosion, Copperweld Line Wire provides much better transmission characteristics for voice and high frequency circuits than all other types of high strength conductors—is 2 to 3 times stronger than hard-drawn copper wire—has greater tensile strength than any wire of comparable electrical properties.

Light in weight, pliable, and easy to string—Copperweld has that high degree of strength necessary for safe, long span construction as well as the ruggedness needed to withstand severe weather, such as sleet, ice and high winds.

Yes, the protection afforded by Copperweld really lasts! So, wherever you need a line wire with the high conductivity and rust-resistance of copper plus the rugged strength of steel, play safe—install Copperweld. Remember that Copperweld products have been successfully serving industry for more than thirty-five years.

Engineering Data Sent On Request. Write for it Today.

COPPERWELD STEEL COMPANY

Glassport, Pa.

SALES OFFICES IN PRINCIPAL CITIES

*Trade Mark

SOLD BY LEADING DISTRIBUTORS

Copperweld Line Wire *Costs Less because it Lasts Longer*

Modern Systems WHIP Today's Problems

To be useful and helpful, training courses must be well planned. Training plans in Traffic are based on a job analysis, made by tallying every operation performed on each particular job operation. — *(Ohio Bell Photograph)*

Problems? No one can get along without them in his work. When one is solved, another always crops up to halt the march of progress. This is a pleasant prospect as long as man is ambitious enough to wonder what he can do to lick the problem, industrious enough to try and just plain bull-headed enough to succeed.

In this new Telephone Engineer feature department we plan to point up many operating problems which have been solved by telephone company employees. Your comments on this new department will be appreciated.

The Owner's Salary

THE PROBLEM: Accounting for the manager's or owner's salary.

THE SOLUTION; Common practice in cases of individually owned telephone companies is the *failure to account for a manager's or an owner's salary*. In many cases the husband makes all plant extensions and performs all maintenance, while his wife, with perhaps the aid of one or two operators, conducts the business. Sure, the amounts paid out for outside help are charged to operating expenses, but frequently no charges are made for salaries of the husband or the wife.

In cases our Research Department has studied, the analyses of operating expenses reveal the fact that many owners charge all of their living expenses to the telephone operation. They co-mingle their personal funds and expenses with the funds and expenses of the company. This procedure invariably causes trouble. Many of the smaller companies claim it is impossible for them to operate the telephone company and keep records at the same time. This we can appreciate. But — amounts paid out for accounting or bookkeeping service are chargeable to operating expenses, recoverable through rates and are as legitimate as amounts paid to a telephone operator or maintenance man. Make your books reflect all charges.

"Revenue Producers"

THE PROBLEM: Development of revenue producing sources.

THE SOLUTION: Here are a few revenue producing sources available within every company's scope of operation: (1) Public Paystations; (2) extension stations; (3) directory advertising; and (4) proper classification of service.

Public Paystations . . . It has been estimated that a company should have a total number of paystations in each exchange equal to 10 to 12.5% of the total number of primary business stations. This will vary somewhat with the size of the exchange and the urban and rural stations in service.

The size and importance of public telephone service is indicated by the fact that, while public telephones comprise only 1.5% of the Bell System main telephones, they contribute 7% of the total billing.

It is recommended that companies searching for revenue producing qualities should investigate every possibility of this paystation service, whether it be public or semi-public, by: (1) Improving service at existing locations by improving the convenience, comfort and attractiveness of the facilities; (2) relieving congestion and increasing revenue by providing ample public telephones; and (3) properly identifying each location with attractive signs and encouraging business establishments to have their flat rate service so located so the subscriber to such service will receive the maximum benefit and at

(Continued on page 44)

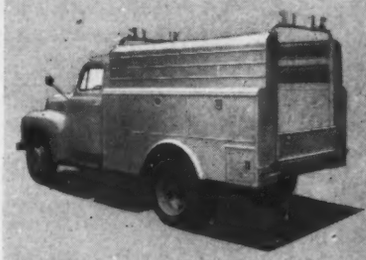
5 Ways to Speed Up Your Service Work

Series 44-90 can be installed on chassis having C.A. dimension of approximately 48″

Series 44-75 for chassis having approximately 40″ C.A. dimension.

Series 44-104 for single or dual rear wheel chassis having 60″ C.A. dimension.

Series 44-L-90 for chassis having approximately 48″ C.A. dimension.



Series 44-L-104 for 60″ C.A. chassis having single or dual rear wheels.

POWERS American — SERIES 44 and 44-L

SERVICE AND MAINTENANCE BODIES

These five bodies have an impressive record for saving time and money on service jobs. Compartments are equipped to keep tools and supplies safe and orderly — easy to inventory before leaving for the job — easy to find upon arrival. The bodies are adaptable to a wide variety of service operations, and each model can be transferred to a new chassis when the original truck wears out. If you're looking for new ways to get more productive man hours, you'll want full information on Series 44 and 44-L bodies. Why not send for complete details . . . now?

Clip this coupon and attach to your letterhead!

McCABE-POWERS AUTO BODY CO., 5900 N. Broadway, St. Louis 15, Mo.
Please send me complete information on the following:

- ☐ Series 44-75
- ☐ Series 44-90
- ☐ Series 44-104
- ☐ Series 44-L-90
- ☐ Series 44-L-104
- ☐ Line Construction Bodies
- ☐ Revolving Aerial Ladders
- ☐ Hydraulic Towers
- ☐ .....

Name..... Title.....

Company.....

Address.....

City..... Zone..... State.....

TV

POWERS American DIVISION

PUBLIC UTILITY BODIES & EQUIPMENT

McCABE-POWERS AUTO BODY CO.

MAIN OFFICE AND PLANT
5900 N. Broadway • St. Louis 15, Mo.

WESTERN OFFICE
Latham Sq. Bldg. • Oakland 12, Calif.

the same time promote the use of public telephones.

Extension Stations . . . Extension stations are a fine source of revenue with small additional investment. Subscribers needs should be studied periodically and recommendations made which will enhance the value of the service rendered. It's a part of the telephone job to see that every subscriber has the facilities best suited to his telephone requirements.

Directory Advertising . . . Neat, legible directories are an asset to any company and offer an excellent source of revenue. Whether your particular operation, depending on size, can support a classified section is no obstacle. There is a type of directory for every size exchange and company. The telephone directory by its every day use offers a medium of advertising equal to, if not better, than any other form of advertising, and revenue-minded companies should take advantage of its potential revenue producing qualities.

Proper Classification of Service . . . Proper classification of service, business or residence, will provide additional revenue. The listing of the subscriber, the predominate use of the service and other factors should be considered in controlling this item. It should be remembered that every business subscriber is also a potential customer for directory advertising, so it may mean more revenue to see that each subscriber is properly classified.

Don't Take It Too Hard

RALPH CORDINER, president of General Electric Co., urges top officials to delegate more work, responsibility and authority to qualified subordinates. This is not the lazy man's way, he said. It's actually an efficiency builder. A lot of top executives who die young would still be living if they quit some of this abnormal "hurry and worry." Shouldering of too many tasks helps only one type of business man, says he — and that's the mortician.

"Neatness

THE NEATEST man we know happens also to be one of the most successful. In a business where paperwork swamps most men, he maintains a desk as bare and neat as a schooner at anchor. We've analyzed the operation over and over again. Yes, he does give work to his associates promptly. Yes, he does carry home a fat satchelful of papers every night, thus taking care of chores that otherwise would stall the traffic across his desk. Yes, he does have a good secretary and a good filing system. But the key, the secret of the whole operation, is the *old-fashioned vertical filing folder*. By carefully inserting each job into a clean manila folder, he somehow magically transforms the whole confused and complicated pattern of his life into one of order and simplicity. The folders slide into precise rows for future reference. They fit handily into the homeward bound briefcase. They stack correctly on one corner of his desk for immediate handling. After watching this man at work, we can heartily recommend the filing folder as the uniform to be worn by the papers of every well-disciplined business or businessman.

Stuffy Letters

THE PROBLEM: Taking the "stuffiness" out of company correspondence.

THE SOLUTION: General Foods Corp. dug into this problem and answered it with a booklet on effective business letters. The booklet stresses many of the stumbling blocks to be overcome if letters are to be good substitutes for face-to-face contact.

"Simple, conversational language takes the horse-and-buggy impression out of a letter and gives it life," the booklet says. It points out that lifeless expressions such as "we are in receipt of," "attached hereto is" and "your esteemed favor" would be more simply expressed and more effective in a letter if the writer said "we received," and "your order."

It recommends use of one word for many. Instead of saying "due to the fact that," simply say "because." Instead of "with regard to" say "about."

The long and short of it, the booklet says, is to "use short, simple words for clear meaning and quick understanding." It suggests "show" instead of "demonstrate," "use" instead of "utilize," "get" instead of "procure."

The booklet gives examples of types of letters, suggests better letters are a joint effort, and gives a nine-point check list for letter writers:

1. Does this letter go straight to the point?
2. Is it conversational — friendly and polite? Have I used the "you" approach?
3. Does the letter treat the reader as an equal and doesn't talk up or down?
4. Is it simple, in words and construction, yet alive?
5. Does the letter sound sincere? Is it sincere?
6. Is this letter complete? Have I said everything I should say — and paved the way for the reader to take the necessary or desired action?
7. Does the letter flow — go smoothly and logically from one idea to the next?
8. Does it do the best possible job for the company?
9. Am I proud to sign my name to it?

Plant Extension

THE PROBLEM: How to properly account for plant extensions.

THE SOLUTION: In accounting for plant extensions, the cost of plant installation, whether it be for replacements or extensions, should be charged to the plant account. These charges should include the cost of materials, labor, and any other expenses incident to the installation.

In cases where the installation results in replacement of plant, the replaced plant should be credited to or retired from the plant account at its actual cost when first installed and charged to depreciation or reserve.

If this accounting procedure is not strictly adhered to, it can result in over-stating the plant account and likewise over-stating the depreciation reserve. If, on the other hand, replacement is made through operating expenses, it will result in under-stat-

ing the plant account and over-stating the operating expenses and the depreciation reserve. Either of these practices will cause trouble when you come before the Commission on any problem you may have requiring the Commission's decision.

Convention Exhibits

THE PROBLEM: To exhibit at the Conventions or not to exhibit.

THE SOLUTION: Summarizing 12 major advantages that trade exhibits offer industrial advertisers, W. C. Copp, exhibits and advertising manager, Institute of Radio Engineers, lists the following:

Exhibits — (1) present products quickly; (2) bring prospects to the supplier; (3) enable the supplier to renew customer contacts; (4) enhance the value of demonstrations; (5) enable the supplier to reach people salesmen can't; (6) produce inquiries and leads unobtainable otherwise; (7) open new markets; (8) build salesmen's prestige and help dealers; (9) help to develop local sales; (10) build community identity; (11) interest prospective employes, and (12) above all, exhibits make sales.

"You have audience participation in trade shows," Mr. Copp said. "You can tell and tell people facts, but until you get them to ask questions you seldom get anywhere. That's what trade shows do. Buyers and prospects come to see and ask questions.

"Another thing: Lots of people in the industrial field never see the products they buy. Exhibits enable them to learn first hand about products, components and end uses, and give the exhibitor an opportunity to give dramatic demonstrations."

Sold? See you at the convention.

Toll Statements

THE PROBLEM: How to eliminate the job of writing or typing toll statements.

THE SOLUTION: Here's a system that has been working efficiently for the *Dos Palos (Calif.) Telephone Co., Inc.* and many other Independent companies throughout the country. According to *Richard D. Crowe*, secretary of the Dos Palos company, "The system of sending the customer the original toll tickets with his bill in lieu of preparing and mailing a typewritten toll statement is not an original method with our company in California, but we did pioneer the *photographic method of toll billing* in the State in Sept. 1943, and several exchanges in California now use the method. The job of writing or typing toll statements, which requires some skill and practice and is just about a never-ending job, has been entirely eliminated and taking its place is the *photographing method* requiring no skill and taking but a fraction of the time, at reduced costs."

The billing procedure up to the time the tickets are photographed on 16mm micro-film is much the same as that used in any method whether the tickets are photographed or a typewritten statement is prepared. They are accumulated and sorted by customers in practically the same way, but after the tickets are sorted the procedure is much different. The tickets are added for each customer and the amounts of the toll charges and tax are posted on a small recap sheet slightly longer than the tickets, with the totals of tolls and tax appearing on the top of the slip in order that the amounts and telephone number can readily be observed without taking the tickets out of the box.

Once the tickets have been added they are ready to be photographed. This is done by use of a machine built for the purpose and renting at nominal cost. After photographing, the film is mailed to a developing laboratory to be processed and returned. The tickets thus follow through the remaining part of the billing procedure of having the amounts of each customers' tolls posted to his bill form, inserted in the envelope with the bill and mailed to the customer.

Customer reaction to the system has been favorable. The original toll ticket gives the customer complete information on the calls. He can readily check the charges. Requests for adjustments have been reduced to a minimum. The time required to make adjustments in the business office is also greatly reduced because the customer must bring the ticket with him or enclose it with his remittance. This feature virtually eliminates reference to film records of the calls. In the few cases where it is necessary to refer to the film, the checking is quickly accomplished with the aid of the projector which is a part of the equipment furnished. Since the tickets are photographed in the order of consecutive telephone numbers it is easy to turn the film to the desired image.

Sending the original tickets to subscribers instead of a toll statement was confusing to some subscribers because it was new. Now the majority of subscribers prefer this system because it gives them much more information than they have on a toll statement. A few expressed objections to the system because they couldn't interpret the information on the tickets and in some cases the tickets were bulky for filing. None of these complaints has given the Dos Palos company serious difficulty.

The machines used for photographing tickets can be rented or purchased. The Dos Palos company rents its machine. The rental charge varies according to the model used. Comparing the cost of the photographic system with the cost of typing the toll statements proves the film method results in savings ranging from 40 to 53%. Other costs pertaining to the billing routine (sorting tickets, posting to bill form showing all charges for telephone service, etc.) are practically the same.

Unoccupied Desks Attract Expenses

WHEN AN OFFICE is equipped with an excessive number of desks and files and gadgets, it is almost impossible for a department manager to keep them idle. He wants people working at them, even though those persons serve no income-producing purpose.

It is said that Henry Ford, who always did his best to keep first things first, would order the removal from an office of any desk he noticed that was not in regular use. "If that desk isn't removed immediately," he would say, "the office manager will start figuring out how he can put another person behind it and thus create an additional position and increase expenses." — *Net Results*

Fig. 1. — Engineers of Michigan Bell Telephone Co. and Bell Telephone Laboratories inspect insulation on new twisted wire.

"How To Do It" Suggestions

By JOHN G. REYNOLDS

Economy Takes A New Twist

"WHAT CAN you figure out to serve widely scattered rural customers economically?"

This assignment was handed to Michigan Bell's General Engineering department. James R. "Jim" Kershaw, then outside plant engineer, now general plant engineer, and Loren M. Dahl, materials and construction methods engineer, drew the assignment.

Why, they wondered, couldn't all 10 of the wires normally attached to one crossarm be made in one cheap, lightweight, easily installed unit?

They thought it could be done.

By wrapping paired insulated conductors about a core wire without an expensive heavy lead sheath, they reasoned further, the weight would be kept to a minimum. In fact, the weight was calculated to be so low that a proper selection of core wire would provide sufficient supporting strength. Thus the cost of a separate steel cable suspension strand could be eliminated.

So, armed with their idea, Mr. Kershaw and Mr. Dahl went to see representatives of the outside plant engineer's group of the A.T.&T. Company and cable design engineers of the Bell Telephone Laboratories and asked them to design a self-supporting unit with five-pairs of twisted wires. See *Figures* 1 *and* 2.

Fig. 2 — New wire is displayed by Foreman Eugene T. Joyce of Pontiac, Mich. It is a single unit composed of 10 light copper wires around a single heavy steel wire.

It was decided to make up two different types of wire: one composed of 19-gauge copper wires insulated by an extruded coating of polyethylene around each wire; the other of the standard C-block wire which has 20-gauge copper wires, each insulated by rubber and jacketed with neoprene.

The 10 wires were divided into five pairs. Each pair was twisted together to form a unit. Then the five pairs were wrapped around the "core" wire (a 109E steel wire) to supply the "self-supporting" strength — to form a single unit. The result: a self-supporting five-pair twisted wire.

A little more than two months later Mr. Kershaw and Mr. Dahl returned to the Laboratories to see the first 500 feet of each of the two types of

wire installed and tested at the outside plant field laboratory at Chester.

According to Michigan Bell, the new wire has many advantages. It is extremely light in weight. It can be attached either to the pole or the under side of a crossarm. It is small in diameter. It does not require complex cable splicing techniques. Each wire is accessible at any point for easy maintenance and addition of subscribers. It is cheap to manufacture.

Since the installation of the new wire at Manchester, Drayton Plains, and Lake Orion, new uses for it are being studied. It is expected that it may be used as multiple drop wires for small apartment houses, and for small business concerns requiring several telephones or a small cordless switchboard.

Hans P. Andreasen, farm telephone manager, said one of the principal uses of the new wire will be along existing lines where, because of physical limitations, it is impractical to add another crossarm.

"Where poles already are in place," he said, "the new multiple wire unit will result in a saving of 30 to 40% over the cost of a crossarm with five pairs of open wire. Thus, its use should aid in expediting the completion of orders at less cost which, in the long run, will benefit all rural customers. The amount of the savings will depend on which of the two types of wire proves most practical."

"Pre-Lash"

PRE-LASHING, newest method of placing small aerial cables, has been put in service by plant construction forces of the Cincinnati & Suburban Bell Telephone Co. This method lashes together the suspension strand and cable before they leave the trailer on which the reels are mounted.

The pre-lashing equipment, which is mounted on a standard cable reel trailer, includes a strand tensioning device, mountings for cable lasher and strand reel and reel brakes. A hydraulic brake system controls the strand tension. See *Fig.* 3.

The ends of the strand and cable are fastened to a "leader" and pulled by a steel line over free-swinging rollers mounted on each pole. See *Fig.* 4. The leader prevents the strand and cable from twisting as they are pulled into place.

Fig. 3 — "Trailer to truck . . . stop . . . trailer to truck . . . stop!" With this message sent by Robert Butcher over the radio telephone-handie-talkie, the operator of the pull truck, John Kramer, some quarter of a mile away throws the winch out of gear while William Overstreet, right, replaces wire in the cable lasher. This equipment, mounted on a standard cable reel trailer, offers a speedy, efficient method of erecting cable by lashing it to the strand as it leaves the trailer. The strand reel is mounted on the lower rear of the cable-reel trailer.

Communication between the pulling truck, trailer and the man following the leader is maintained by radio telephone sets — handie-talkies.

This pre-lashing method eliminates the placing of temporary cable supports and cuts in half the necessary pole climbing.

Special "strand shifters" assist in transferring the cable to permanent attachments after normal sag is attained.

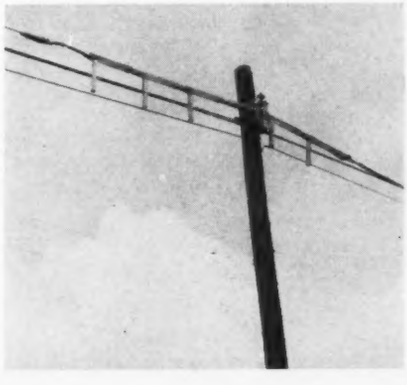


Fig. 4 — Each pole is equipped with a roller, supported in a frame so that it can swing freely. The pulling truck is equipped with 3000 feet of steel line which is pulled through the rollers by means of a previously placed manila rope. The "leader" to which the ends of the strand and cable are fastened is pulled by the steel line through the rollers. The leader prevents the strand and cable from twisting as they are pulled into place. Note the weighted "fingers" of the leader which folds up into the frame as it passes through the rollers.

Resuscitation In The Sky

ALWAYS ON THE lookout for new methods of employe safety, the Safety Policy Committee of the Commonwealth Edison Co. recently approved a new method of pole top resuscitation. It is an adaptation of the push-pull technique that is the basis of the back pressure — arm lift method adopted last January for applying prone artificial respiration.

The method is the result of extensive studies and experiments conducted at the University of Illinois college of medicine with Edison co-operation.

In the performance of the standard pole top resuscitation the rescuer ascends to the victim, secures his safety strap around the pole and places the victim astride it between himself and the pole. He encircles the man's waist with his arms and compresses his abdomen in an upward motion. The pressure is quickly released and reapplied about 12 to 15 times a minute. It was suggested that the application of the push-pull principle to pole top resuscitation would significantly increase effectiveness of the operation.

In the experiments at the univer-

(Please turn to page 50)

It's important to you - - - - - - - - - what kind of people make your telephone equipment. For it doesn't matter how correct the design, how good the tools . . . if careless hands can spoil the finished product.

Our Leich people are experienced, skilled at their jobs. There's a family spirit of cooperation at our Genoa factory that you'll rarely find in bigger cities.

Our people are genuinely proud of Leich telephones and switchboards, and in their jobs of making them.

You can depend on Leich telephone equipment. Leich Sales Corporation, 427 W. Randolph, Chicago 6, Illinois.

LEICH MAN MEMBER

Yes, people still do take pride in their work

MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

MEMBER OF THE GENERAL TELEPHONE SYSTEM

sity each "victim," a university student volunteer, was rendered unconscious by an anesthetic and temporarily paralyzed by a barbiturate curare mixture. He was then placed on an improvised pole where experienced Edison linemen performed the resuscitation.

To maintain a clear breathing passage for the subject during the experiment, a tube was inserted in his windpipe. The tube was connected to a carefully balanced recording spirometer by means of which the intake and outgo of air in his lungs was measured.

At the present time a program for teaching the new method to employes whose work involves the use of safety belts is being developed.

Have You A Ladder Problem?

ARE YOUR ladder requirements the same as those in the plant across the street? In all probability they are similar but not exactly the same. There may be jobs that have to be done that require a heavier than usual ladder. It's just such an occasional job done with improper equipment that often spoils a safety record.

Just as no one wrench, drill press, unit heater or compressor can be used for every application in a plant calling for such a piece of equipment, no one ladder can be safely used with its proper selection for the job to be done.

Obviously, too light a ladder for a heavy duty job is a poor risk and is often a contributing factor causing an accident. By the same token, too heavy a ladder for light duty work does slow down the person using it, reducing his efficiency and increasing his fatigue causing him to be more accident prone than if he had used the proper ladder for the job.

To assist you in selecting ladders, the American Ladder Institute, 666 Lake Shore Drive, Chicago, Ill., has prepared a pamphlet entitled: *"There's a Right Ladder for every job."* This digest of things one should know about ladders with suggestions for their proper use and care is available upon request at no charge.

Should you have a ladder problem or special applications requiring individual attention, write the American Ladder Institute. The Institute will contact those manufacturers who specialize in building ladder equipment to customers specifications. Then, by working with your safety engineers, maintenance foremen, or plant superintendent, special ladder equipment can be made to suit your individual requirements.

The cost of special ladder equipment is small in comparison with the cost of an accident.

Are You A Good Boss?

IF YOUR WORD IS going to count, on safety or any other matter, you've got to be a good boss. Here is a picture of the good supervisor, drawn from many men.

The experienced supervisor knows his job from A to Z.

He knows and understands his workers and is friendly to every one of them.

He is fair, appreciative, considerate.

He gives detailed instructions clearly.

He is a leader, not a driver, and he controls his temper.

He is consistent, keeps his mind open, and keeps his promises.

He gives every single grievance, real or imaginary, his careful attention and gets rid of irritations before they give rise to complaints. — *Department of Labor.*

Do You Know How To Instruct?

THE EXPERIENCED supervisor teaches safety as part of any job. He knows that to get a job done right (and a job must be done safely to be done right) he must make his instructions clearly understood. Teaching, he knows, is an art, and here is how he does it.

He tells the worker how to do the job. But telling alone is not teaching.

He shows the worker how. He uses illustrations, perhaps on a blackboard or in some printed matter. Then he demonstrates how the job is done by doing it himself.

He has the worker himself do the job. And he checks him at his work, supervising him closely until the man has it — until he knows only one way to do his work — the right way. He sees that experience in doing the job in the right, the safe way, teaches the worker.

The experienced supervisor makes these steps a fixed habit in instructing his workers. He takes these steps in order, slowly, and patiently. He puts himself in the place of the new worker, realizing that what seems easy to him is very difficult to the green hand. — *From the booklet "Butch Looks To You," published by the U. S. Dept. of Labor.*

"I Will"

THERE WAS ONCE a man who was obcessed with the idea that there was a secret known to those who achieved success. To discover this secret he devoted years to study and research. Ancient Masonry, philosophy, astrology, psychology, salesmanship, religious beliefs, the various cults that have had their rise and fall — all these he studied long and diligently. Finally he gave his conclusion, and it came in two short words: "I will." — *Sunshine Magazine.*

Questions and Answers

Conducted By

JAY G. MITCHELL

Mr. Mitchell discusses — (A) Ship to Shore Jitters; (B) Spinning or Rings for Plastic Cable; and (C) Signal to have Subscriber's Station Receiver replaced in Magneto Office.

QUESTION: — *I would like to subscribe to* "TELEPHONE ENGINEER AND MANAGEMENT" *and* "FORTNIGHTLY". *What are your rates?*

As a former subscriber I would like to ask your advice on the following problem: Here there is being installed Ship to Shore radio service and it is planned to use the local telephone system to extend these calls to local telephones, that is, a call coming in on the radio for a certain station, that station will be dialed on the local telephone system, then the telephone will be switched to the radio circuit and conversation will be established.

My contention is that this will cause cross talk, this radio conversation will be heard on other circuits in the cable; these cables are regular local service telephone cables 22 *and* 19 *gauge. Would this type of hookup affect our automatic equipment?*

ANSWER: — This inquiry indicates a commendable spirit of concern for the maintenance of local service standards but in my opinion it is not a matter that need cause our correspondent any worry. It is assumed that the connection between the ship to shore radio and the wire communication system will be properly engineered. In that case there is not the slightest possibility that the local wire telephone communication will be affected adversely.

It is suggested to this correspondent that it would be a smart maneuver for him to study a little on the subject of ship to shore communication so that he will be in position to lend an effective hand in the maintenance of satisfactory service of that sort as well as the usual wire station to station dial service with which he is presumably familiar. However, I would be glad to see the plan on paper, if additional advice is needed. So it is hoped that his inquiry may be amplified by sketches showing the intersystem arrangements.

I am asking the Circulation Department to answer the inquiry about subscription rates direct.

QUESTION: — *Needless to say I enjoy your column very much and receive much valuable information through it.*

I am going to put up 9,000 *feet of eleven pair plastic cable. It has been strongly recommended that I use rings rather than to spin it. I would appreciate any information relative to the comparative advantages of either method of suspending it. Another thing I would like to know is whether or not cable ring saddles would be worth their added cost.*

ANSWER: — This is a very interesting inquiry but one to which a direct and definite reply cannot be given. In stringing cable it is always, just as it is in the case of any other kind of new plant, advisable to look into the future. The placing of 9,000 feet of any size of cable would seem to call for the working out of a carefully considered plan designed to provide facilities where needed for a term of years. Such a study would call for a careful study of the present and future probable demands for service, the growth of the community, the plans of the authorities to install pavement, the remaining age of the poles on which the proposed cable is to be placed, the distribution of the service to side streets and rural neighborhoods, the best location for the distributing cable terminals, many other factors and the cost.

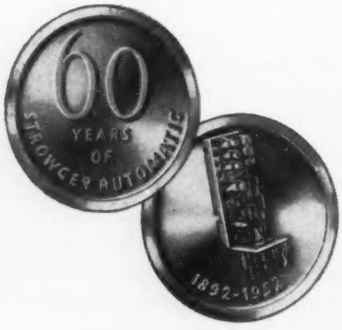
If the new cable is not to be tapped for nearby town service but is to provide dependable wire facilities to a neighborhood away from the main telephone office then one general plan may be adopted. If the new cable is to be the distribution facility for shorter local circuits then another plan, involving the placing of distributing terminals is indicated.

In answer to the question about cable ring saddles it can only be said that the condition and age of the cable suspension rings would probably be the determining factor as to their use. My general advice to this inquiry is that you first off make a complete study of your community, asking for help if necessary from your neighboring large company, and that this plan be completely worked out in every particular before any funds are invested in telephone plant that will be inadequate or displaced by natural conditions in a time that is short compared with its service life.

It is believed that, other things being equal, the spinning method of supporting aerial cable will involve a lower overall first cost than other methods but this opinion must be qualified to correspond with the circumstances of the future as roughly suggested above.

QUESTION: — *We are in need of a tone generator to supply a distinctive signal to a line when receivers are left off the hook. This tone should be quite powerful as generally a radio can be heard running in the room. We can assemble this equipment if the necessary circuit diagram can be obtained. We have a magneto exchange with full metallic lines and*

(Please turn to page 54)



Mrs. John Southward of Downey, California, greets Joe Maestrejuan of the Associated Telephone Company, Ltd., as he arrives to install the 500,000th telephone.

Strowger Automatic User

INSTALLS 500,000th STATION

One morning recently the Associated Telephone Company, Ltd.,
of Santa Monica, California, forged past a historic milestone:
the installation of its half-millionth instrument.
Associated, the largest Independent in the United States,
is justly proud of this achievement.

It symbolizes a tremendous expansion made in a short time.
For example, in July 1947, the Downey exchange area
—where the 500,000th telephone was installed—
had 9,096 telephones;
in July 1952, Downey had 32,404 stations!
. . . For the past 6½ years, somewhere in its extensive system,
Associated has installed a telephone *every 12 minutes!*

Here at Automatic Electric
we are inclined to feel a sense of accomplishment, too,
for we have supplied a vast amount of the equipment
which Associated has required in its phenomenal post-war growth.
As a result, Associated's exchange equipment
is now almost entirely Strowger Automatic.

Congratulations, Associated. May you soon hit a million!

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

Connecticut

Six-in-One*

WALL/DESK

TELEPHONE

FROM DESK TO WALL WITHOUT A CHANGE

Easy to change from magneto to CB—manual to dial. Only tool needed is a screwdriver!

The versatile Six-in-One is rugged. Its *die-cast housing* takes severe abuse. Developed as a standardized wall/desk telephone for U.S. Signal Corps, it meets all military requirements. Improved features include extremely sensitive ringer and anti-sidetone. Capsule-type carbon transmitter and receiver are interchangeable and equivalent to standard Western Electric F1 transmitter and HA1 receiver.

***ORDER** one to try on your magneto line.*

*WALL/DESK/LB/CB/MANUAL/DIAL

Connecticut

TELEPHONE & ELECTRIC CORP.

60 BRITANNIA STREET

MERIDEN • CONNECTICUT

serving four hundred and seventy-five stations. Your department is a godsend to us trouble hunters. A stamped envelope is enclosed for early reply.

ANSWER: — Since the type of Central Office Equipment in use by the company from which this inquiry came is not specified it is possible only to make a very general reply, one that will be suitable regardless of the type of switchboard equipment that may be involved. The first suggestion that it seems proper to make is that this company write the manufacturer of the switchboard and ask if the manufacturer does not offer an outfit especially designed to meet all the local circuit and other conditions. In case no equipment is available from the manufacturer it will not be difficult for the local wire chief to make up an outfit for the purpose outlined without trouble.

Of course a pleasant musical tone that is sufficiently loud to attract attention over the ordinary noises of the home is very desirable but the principal thing is to attract the attention of those who may be expected to replace the telephone receiver in its normal position and so free the entire circuit for use. On this basis the following suggestion, which was offered when a similar inquiry was received last year is worthy of a trial. The equipment is that found in any telephone office with one possible exception. Secure a bell ringing transformer for connection with the alternating current 110 volt circuit just as it would be connected for the bell ringing task. The transformer should be one of the kind that has three secondary terminals providing output current at 6 volts nominal, 12 volts nominal and 18 volts nominal, as may be found by trial to be most effective.

This bell ringing transformer should be connected to the electric light circuit, on the primary side, of course, through a very light fuse. Then the secondary should be wired to a key of the release or non-locking type on the wire chief's desk in the same relation to a test cord, preferably a special test cord for this one purpose only, just as the ringing current supply is connected to the other wire chief's cord circuits. When all is ready the device should be tried out on a telephone in the terminal room the purpose being, among other things, to determine which one of three possible secondary nominal voltages is the most effective.

When the non-locking key is held in the operated position a 60 cycle alternating current will be sent out over the telephone line and through the receiver that has not been replaced causing a loud rattle that is sure to attract attention. The test should be made with the 6 nominal volt tap first, then the twelve and finally the 18 until satisfactory results are obtained. The fuse in the primary circuit of the transformer should probably not be of higher rating than ½ ampere and the key should be released after the current has been on the line for a few seconds. It can be repeated, of course, if tests show that the receiver still has not been replaced.

Will you please write in again and report how this plan works out? Thanks also for the kind words in your letter. If the plan is a satisfactory one the cost will be almost negligible, certainly lower than the cost of a trip into the country to restore the service. — THE END.

Industry News Briefs

(Continued from page 18)

County, Idaho. This is the first telephone loan in Wyoming and brings to 40 the states in which REA is financing the improvement and extension of rural telephone service.

The borrower is now furnishing dial service to 102 subscribers. The loan funds will be used to improve and expand the Freedom central office facilities to include 234 subscribers now without telephones. Six miles of new line will be constructed and 23 miles of the existing line rebuilt. The company has arranged for the Lower Valley Power and Light, an REA-financed cooperative, to provide accounting services.

The completed system will consist of 44 miles of line serving 336 subscribers with modern telephone service. It will be designed to meet the needs of all potential subscribers in the area who may wish service.

FARMERS TELEPHONE COOPERA-

TIVE, Kingstree, S. C., $714,000, to finance the improvement and expansion of telephone service in rural areas of Clarendon, Florence and Williamsburg Counties.

As a basis for the system, the new cooperative has acquired the telephone properties of the Greeleyville Telephone Company at Greeleyville, plans to acquire 40 miles of farmer-owned lines on which South Carolina Continental Telephone Company now provides switching service, and 61 miles of rural line from the South Carolina Continental Telephone Company. These lines are now furnishing service to 232 rural subscribers.

The REA loan will enable the borrower to build 632 miles of new line, and install new automatic dial central offices at Greeleyville, Manning, Kingstree, Sardinia, Scranton and outside of Andrews. The Kingtree and Manning offices will serve only rural subscribers. Service without toll charge is contemplated between several of the cooperative's exchange areas.

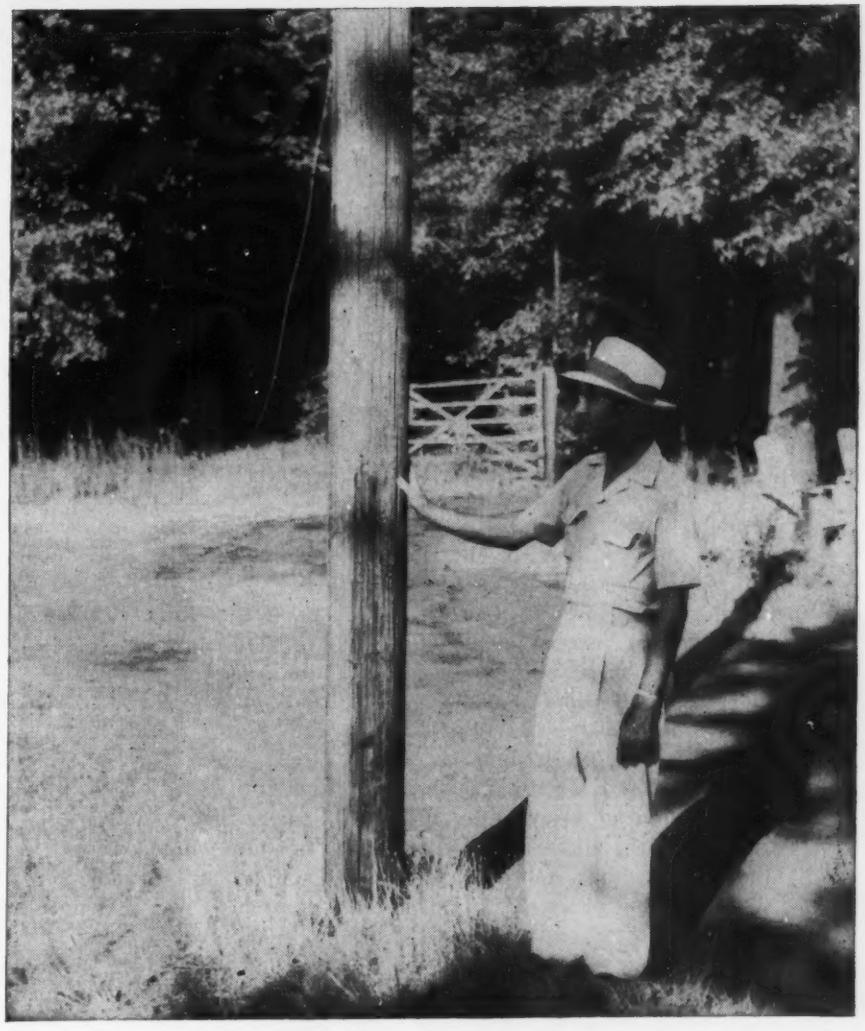
The modernized and expanded system will consist of 725 miles of line providing dial service to 1,494 rural subscribers, including 1,262 now without telephones. It will have backbone plant facilities to serve all potential subscribers.

CREAM VALLEY TELEPHONE CO., Hawkins, Wis., $64,000, the second loan to this borrower.

This loan will finance the construction of 43 additional miles of line and cover increased construction costs since the original loan of $136,000 was approved in October 1950.

Over 600 rural homes and establishments in Rusk and Price Counties will receive modern telephone service as a result of the rehabilitation and expansion under the REA loans. The completed system will operate 161 miles of line and will be designed to serve all establishments in the area which desire telephones.

SCOTT COUNTY TELEPHONE COOPERATIVE, Gate City, Va., $60,000, the second loan to this borrower. This loan will be used to finance the construction of 30 miles of line necessary under revised plans of the borrower, and to cover the increased costs of construction involved since the original plan was approved. Service without toll charge is contemplated for subscribers throughout some of the borrower's six exchange areas.



KOPPERS POLE

"1914 Model"

still in service!

YOU can't blame the man for admiring this Koppers Pole. It was pressure-creosoted at the Koppers Grenada plant in 1914 . . . 38 years ago.

For such long-lasting service, and lowest cost per year, specify Koppers Pressure-Creosoted Poles. It's a buying practice that will show results in better operating records.

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January through December, 1952

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Cancer strikes one in five

Strike back

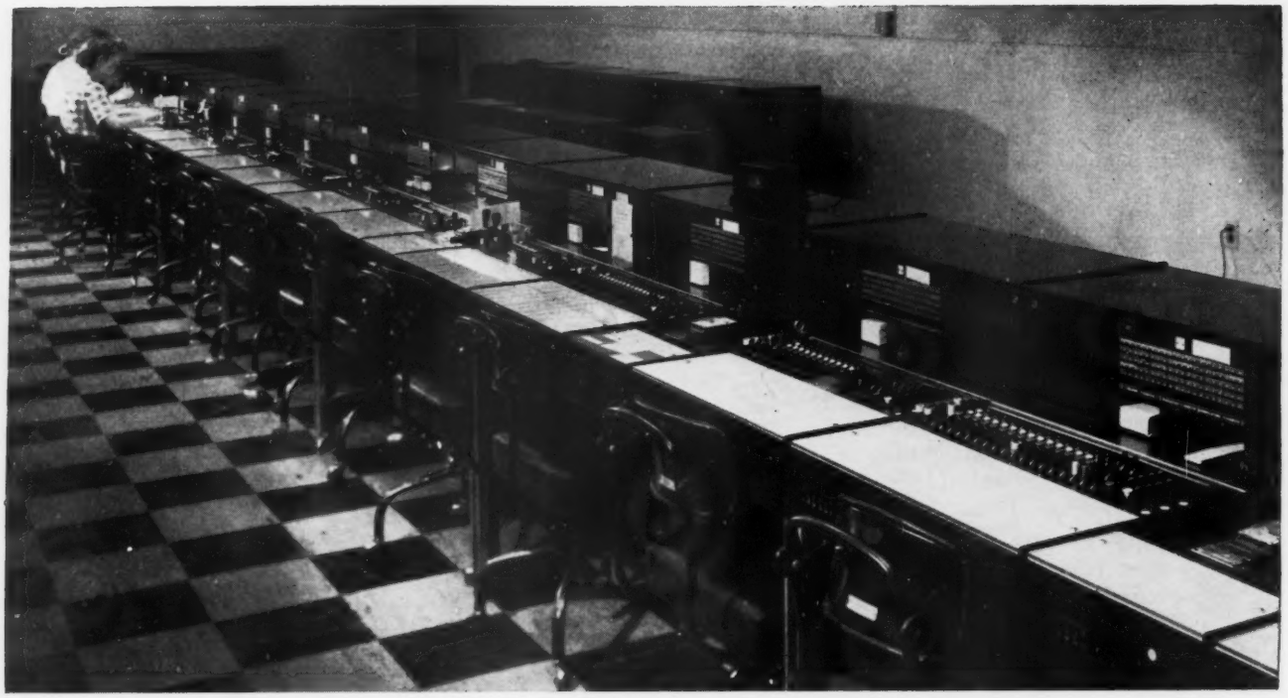
By saving lives, by easing pain, by improving services to cancer patients, by supporting research that will find the final answers to cancer . . .

That is how your dollars strike back at cancer when you give them to the American Cancer Society.

Send your gift today by mailing it to "Cancer" care of your local post office.

Give to conquer cancer

American Cancer Society



Modern long distance department of the Richmond Home Telephone Co., Richmond, Ind. When the department was modernized in 1948 it consisted of only eight positions. — *(Photo from Fred S. Bishop, superintendent of equipment, Richmond Home Telephone Co.)*

Modern Central Office
Maintenance Practices

By JOHN S. REED

Section XIII-A of Mr. Reed's article begins a discussion of — (1) Locating Trouble in Switchboard Circuits, and (2) Circuit and Equipment Faults.

SINCE it is the general practice to employ a 1000-cycle tone in transmission tests, a common oscillator may be installed in a convenient location such as the toll IDF (*Figure* 193) and the output made available through the office switching equipment. The output is also connected to a vacant jack on each operator's position (common battery or toll switchboards.) In this way the tone can be obtained for tests by dialing a test number or by requesting the operator to plug in the oscillator jack at her position.

The central office maintenance man should be particular in the care of the testing equipment. Cases of false trouble have occurred because of the faulty operation of the test set resulting perhaps from an exhausted battery, worn cords, or other defective components of the test equipment. Such mistakes can be avoided only by checking the condition of the instruments before starting a test. —

Using the Ohmmeter in Checking Circuit Elements

BESIDES determining in what part of a circuit, a ground, short, cross, open, or a high resistance condition has occurred, the ohmmeter can be used to ascertain the resistance of units such as resistors and line drop, clearing out drop, relay, retard, and repeating coil windings; and to check condensers.

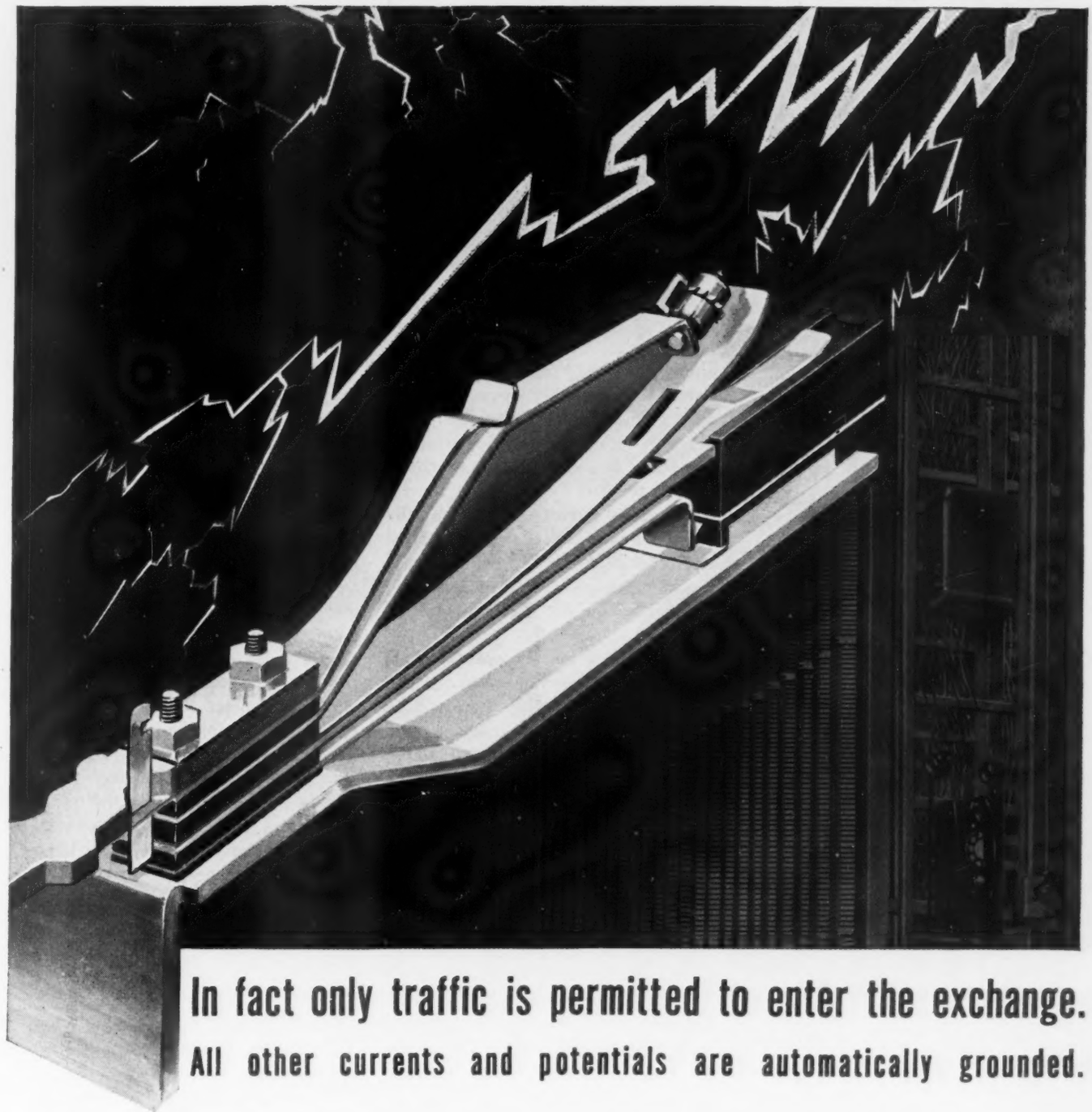
In using the ohmmeter, care should be taken to avoid current from the ringing leads or from the central office battery getting into the meter. This danger can be eliminated by removing or disconnecting the equipment in accordance with standard central office procedures.

The winding of a drop, relay, retard, or repeating coil may be open, short circuited, or have a high resistance connection. A check with the ohmmeter will indicate the nature of the trouble.

In checking the condition of a coil

It Says "STOP!"

.....and Even Lightning Obeys!



In fact only traffic is permitted to enter the exchange.

All other currents and potentials are automatically grounded.

THE Cook Electric Company's central office protectors insure continuity of service and protection of personnel and office equipment. Built since 1900 they are five generations improved and are regarded as standard equipment by the Independent Telephone Industry.

COOK ELECTRIC Company

2700 SOUTHPORT AVENUE CHICAGO 14, ILLINOIS

winding, the connecting wires should be removed from both terminals. Unless this is done, it may be difficult to determine if the trouble is due to a ground or to a short, particularly in the case of a relay coil with one terminal connected to ground.

The presence of a ground on the coil winding is confirmed by connecting one test lead to the core of the coil and the other lead to each terminal of the winding, in turn, and noting the reading that the meter gives. If the meter shows no reading, the coil is not grounded. In that event, the meter leads are connected across the coil terminals and the resistance reading is noted. A reading considerably lower than the normal resistance shows there is a short in the coil winding. Generally, the normal resistance is the rated resistance marked on the coil or indicated in the circuit diagram, plus or minus five per cent.

Occasionally a relay is found to have a non-inductive resistance in parallel with its winding. This combined or parallel resistance is always lower than either the resistance of the coil or of the non-inductive resistance alone. This fact should be taken in consideration when checking the circuit components. If a relay with non-inductive resistance in parallel with the coil winding is indicated on the circuit diagram, the parallel resistance is determined as follows:

(1) Multiply the two resistance values together.

(2) Add together the two resistance values.

(3) Divide (1) by (2).

(4) The answer is the parallel resistance is ohms.

For example, suppose a 300-ohm relay has a 1000-ohm non-inductive winding in parallel with it. Then:

(1) $1000 \times 300 = 300{,}000$

(2) $1000 + 300 = 1300$

(3) $300{,}000 \div 1300 = 231$ ohms, answer.

In checking the resistance of a relay having a non-inductive resistance in parallel with it, if the test shows that the resistance reading corresponds in value to that indicated for the relay winding alone on the circuit diagram, the non-inductive resistance is probably open. Thus, in the example in the foregoing paragraph, if the meter indicates 300 ohms instead of approximately 230 ohms, the 1000 ohm inductive resistance is probably open. On the other hand, if a reading of 1000 ohms is obtained, the relay winding is open. (In either case, the open can be verified by removing the relay from the circuit and checking the relay winding and the non-inductive resistance separately.) Ordinary continuity tests, as with a receiver and battery, would not detect a fault of this kind.

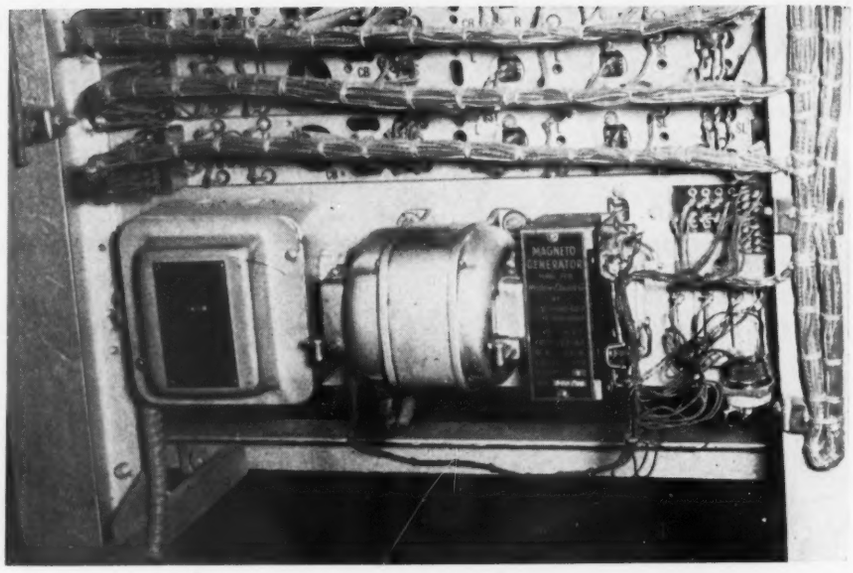


Fig. 193—Commutator type 1000-cycle oscillator used for general testing purposes.

A condenser may be open or short circuited, or it may pass leakage current. In the first case, there will be no reading on the ohmmeter, and in the second, a short-circuit reading. In the third case, there will be a high resistance reading, showing that leakage current is flowing through the condenser.

To make the test, set the range selector switch of the meter on the highest resistance range. Connecting the meter leads to the condenser terminals will cause the meter needle to deflect momentarily, because of the charging current. The degree of deflection will depend on the capacity of the condenser. The greater the capacity, the greater will be the deflection. If the test clips are reversed and reconnected to the condenser terminals, the resulting deflection will be twice as large as the first one.

The meter needle should return to the zero point after each deflection. Any reading above zero indicates the presence of leakage current. In this case, the condenser is defective and needs replacement.

After the initial deflection, the condenser is charged and no further deflections of the meter needle will occur on reconnecting the meter, unless the condenser terminals are first short circuited, or the meter leads are reversed. This is an important thing to remember in making point-to-point tests. Whenever a condenser is connected in series with the circuit being tested, the meter will indicate a momentary deflection when the terminal on the other side of the condenser is touched with the meter clip. The meter should then be reconnected on this side of the condenser, to continue the point-to-point test of the circuit. This avoids having the condenser between the testing points and thus causing a false test.

The method of locating a bad condenser in a common battery cord circuit is shown in Figure 194.

Testing Procedures — Use of Circuit Drawings

THERE ARE two general classes into which testing methods may fall, namely, routine tests and emergency tests. The purpose of the first is to detect conditions likely to cause trouble and before interference with service results. That of the second is to locate an actual case of trouble that puts a circuit out of service.

A routine test is a uniform testing procedure which checks the condition of switchboard circuits at regular intervals, always testing each circuit in the same way each time to make sure that no possible cause of

trouble is overlooked. Cord circuits receive the most attention in such tests, since they are common to all lines, hence carry perhaps ten times as much traffic load as do line circuits, and a fault there would be much more serious for this reason.

In emergency tests, the affected circuit is divided into several parts and each part tested until the fault is isolated. Such tests are generally made when trouble is either observed by an operator or reported by a subscriber and found to be in the central office.

With the best of test equipment and skilled personnel to handle the equipment, tests cannot be properly made without referring to the circuit drawing associated with the switchboard circuit under consideration. The maintenance man would find it quite difficult to trace the circuit through the switchboard and terminal board wiring without a diagram to identify the terminals and wirings. The most he can possibly carry in his mind is a simple outline schematic of the equipment he works on. It is thus important that the central office has all the required prints of the office equipment and that the central office workers be able to read and comprehend them as pointed out in a previous section.

In using the test equipment in conjunction with the circuit drawing, the circuit of the part of the equipment in trouble is traced out on the print. The test clips of the test unit are connected at the proper points indicated on the print to locate the fault.

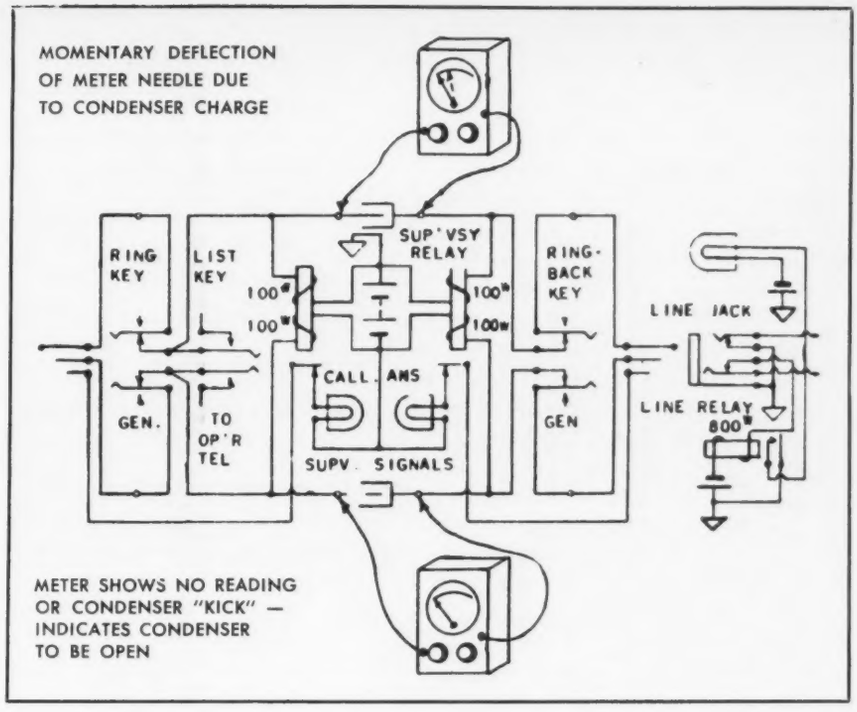


Fig. 194 — Method of locating a bad condenser in a common battery cord circuit.

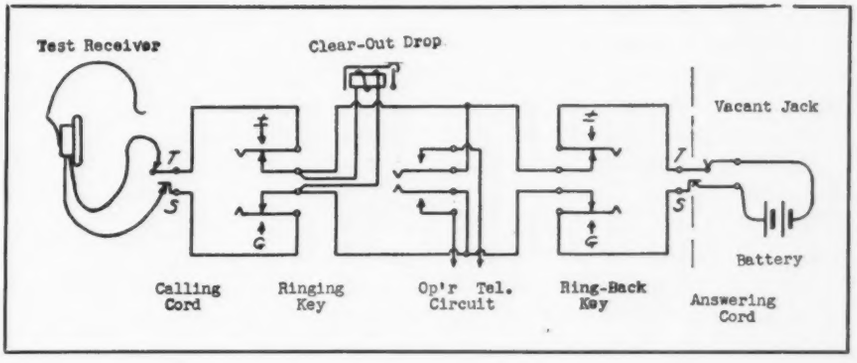


Fig. 195 — Simple test arrangement for magneto cord circuit using vacant jack and battery.

Cord Circuit Tests in Magneto Switchboards Using Receiver

FOR CORD circuit tests of a routine nature in magneto exchanges, a vacant jack may be connected to one or two dry cells to provide a convenient way of testing cord circuits. The answering cord of the circuit being tested is plugged into this jack and the head receiver is connected to the sleeve and tip of the calling cord (Figure 195). Listening tests are made while shaking the cord, rotating the plug in the jack, and moving key levers sidewise. The slightest noise in the circuit resulting from these operations can be easily detected, since a continuous path exists through the entire cord circuit from the battery to the receiver and the slightest break in this path is instantly manifested by clicks or a scratching noise in the receiver.

This method cannot be applied to the testing of cord circuits when the answering and calling cords are isolated by repeating coils or condensers, or in cases where there is a short or an open in this circuit for the reason that the path of the battery current to the receiver is broken. This calls for the use of a different method in which the receiver is connected in series with dry cells and utilized to test parts of the circuit through which the battery current will pass.

To locate an open in a circuit, one clip of the test set is connected to a selected starting point such as the tip or sleeve of the answering plug and then, with the test prod, exposed terminals or lugs are touched one by one in a progressive order through the circuit until a point is reached where no click is heard in the receiver. The clip of the test set is then moved to the last terminal touched prior to the one beyond the open. This portion of the circuit is again checked with the test set to verify the presence of the open. A visual examination at this point will usually reveal the cause of the open. The method of locating an open in a cord circuit is shown in Figure 196.

To locate a short, the clip of the test set is connected to the sleeve of the answering cord of the affected circuit, and the presence of the short is verified by touching the tip of the

plug with the prod (Figure 197). A loud click denotes a direct short while a fainter click may be due to the resistance of the clearing out drop coil or the repeating coil winding. If a short is indicated, one of the cord conductors is disconnected at the terminal strip in the rear of the switchboard and the test set connected across the cord conductors (or the tip and sleeve of the plug) to ascertain if the trouble is in the plug. If the cord tests clear, the test is made from the cord terminals to the ringing and listening keys, inserting cardboard insulators between contact springs to isolate parts of the circuit. The test is continued in progressive order toward the calling cord until the cause of the short is located. The fault will be found to be between a normally clear portion of the circuit and the last terminal which should have tested clear.

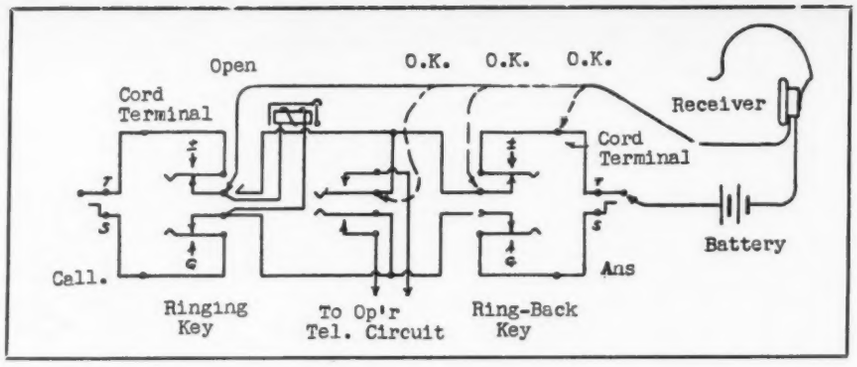


Fig. 196 — Locating an open in a magneto cord circuit, using receiver and battery test set.

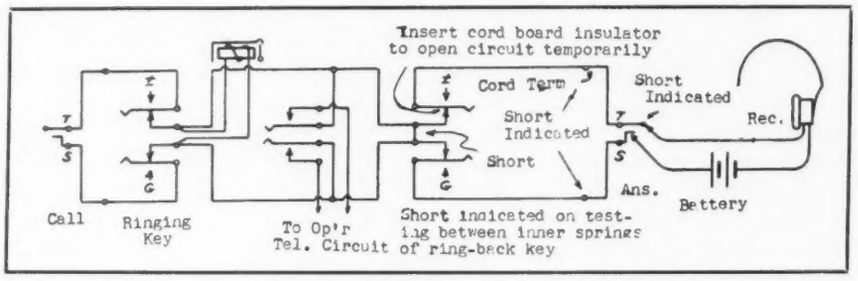


Fig. 197 — Locating a short in a magneto cord circuit, using receiver and battery test set.

Testing Magneto Switchboard Circuits (Using Ohmmeter)

FOR ROUTINE testing of standard magneto coil circuits with the ohmmeter, the meter leads are clipped to the tips of the answering and calling cord plugs and the cords shaken, while observing the meter for a fluctuating reading, which would indicate broken tinsel in the cord. The meter leads are then connected to the sleeves of the plugs and the cords tested, in the same way as for the tip-to-tip connection. When testing each set of answering and calling cords the corresponding cord keys are operated and the lever cams moved sideways to detect irregular operation of the keys.

If time can be saved in this manner and the jacks are available, two vacant jacks may be utilized for connecting the cords to the meter. The diagram of connections is shown in Figure 198. Plugging the answering cord into one jack and the calling cord into the other jack will place all conductors of the two cords in series with the meter. The meter will then read the series resistance of the conductors.

When a cord is plugged into the meter jack only, the meter will indicate the resistance of the clearing out drop connected across the cord circuit. To prevent the resistance of the drop from reducing the sensitivity of the test of the portion of the cord circuit between the drop and the short circuited jack, the cords should be reversed and replugged into the jacks, and the test repeated. In addition, the plugs may be tested for cut outs due to worn condition or corrosion by rotating them in the jacks. In this case, the test jacks should be in good condition to avoid a false test.

To test a dead cord circuit in a magneto switchboard, first determine if the fault is a short or an open by connecting the meter to the sleeve and tip of one of the other cord of the cord circuit in trouble, as shown

(Please turn to page 64)

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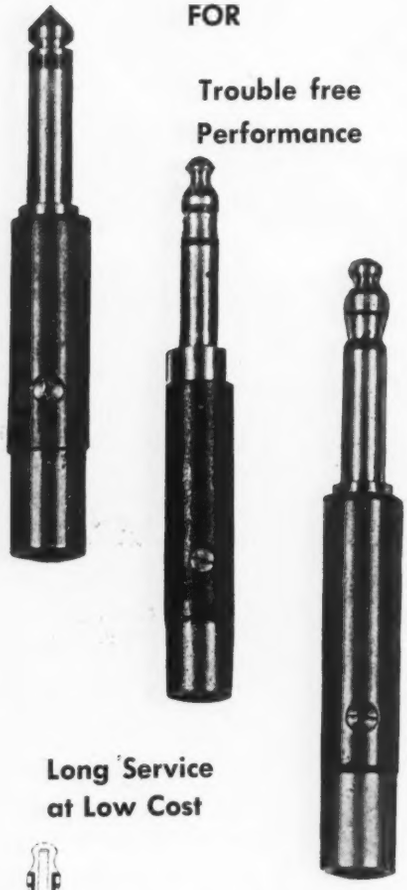

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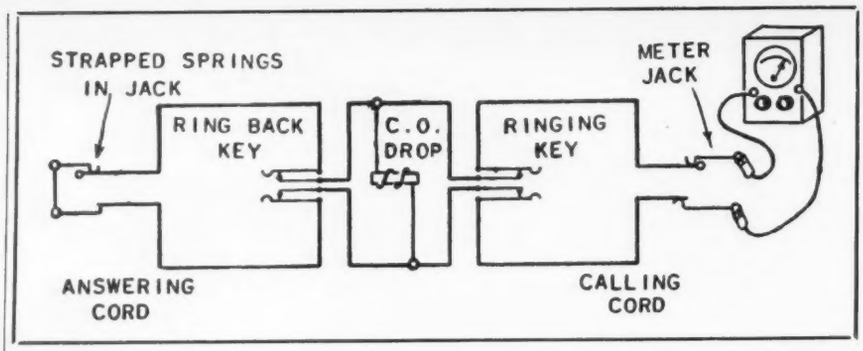

Fig. 198 — Suggested arrangement for connecting the ohmmeter for routine testing of magneto cord circuit.

in Figure 199. If the meter shows no reading, the circuit is open. On the other hand, if a reading much less than the normal resistance of the circuit (resistance of clearing-out drop), is obtained, there is a short somewhere in the circuit.

To locate an open, first determine whether the open is in the tip or sleeve side of the cord circuit, or in the clearing-out drop. Connect one meter lead to the tip of the calling plug and the other lead to the tip of the answering plug. Continuity of this part of the circuit is indicated by a low resistance reading (two or three ohms). Connecting the meter between the sleeves of the answering and calling cords should result in the same resistance reading being obtained. If both sides of the cord circuit test O.K., but is open between the tip and sleeve, the clearing-out drop winding, or connections thereto, may be open.

To determine if the open is in the cord conductors or the plug, short circuit the sleeve and tip sides by attaching a test clip to the plug in such a manner that the clip jaws bridge the tip and sleeve of the plug. Connect the meter to the cord tip terminals S and T (similar to the arrangement shown in Figure 201). A normal resistance reading of the two cord conductors in series indicates this part of the circuit to be O.K. Test the other cord in the same manner.

If a normal resistance reading is obtained on both cords, the open is somewhere in the circuit connecting the two cords. The next step is to test the part of the circuit in which the open appears to be located. The method is to connect one clip of the meter to a selected starting point and, using the other clip as a test prod, touch exposed terminals or lugs in the circuit one by one in a progressive order, until a point is reached where the meter fails to indicate continuity. (Note: A screw driver may be used for the test prod by clipping the test lead to its shank.) This point-to-point test procedure is illustrated in Figure 200.

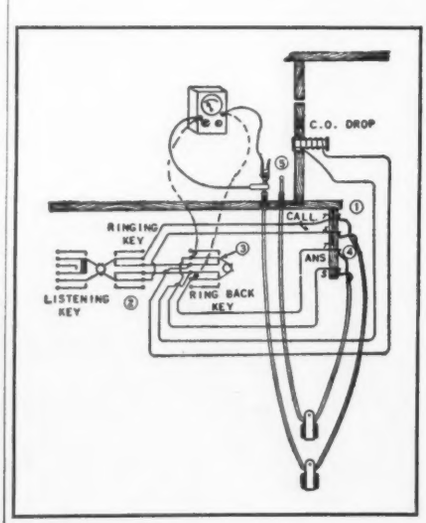

Fig. 199 — Preliminary test for short or open in magneto cord circuit.

As an example of the foregoing method, suppose that an open is indicated in the tip side of the cord circuit, somewhere between the ringback and ringing keys. Connect one meter clip to terminal lug B on the ringback key (Figure 200). Touch the test prod to lug C of this key and then lug D (to check condition of the clearing-out drop). Proceed to terminal lugs O and N of the ringing key in order. At lug O, the meter fails to give the normal reading. Examination of the contact points between N and O reveals that a particle of dirt has lodged between them. After cleaning the contacts, a normal reading is obtained on connecting

(Please turn to page 66)

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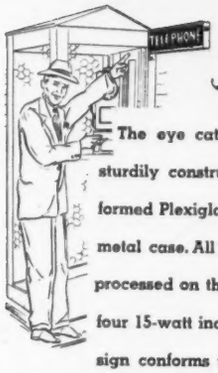

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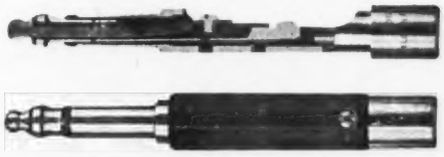

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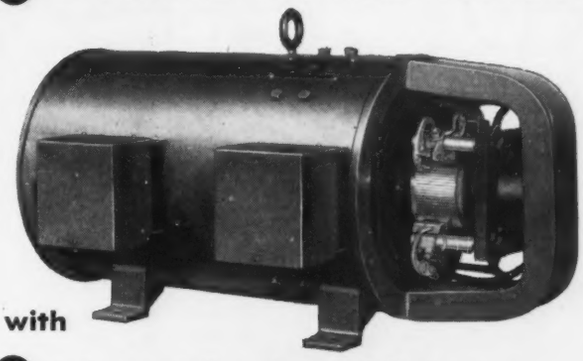

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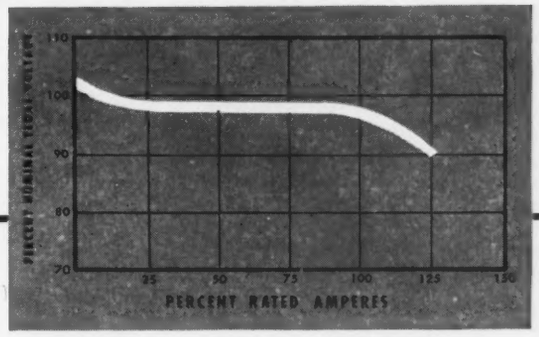

Constant voltage delivered by E. P. Diverter-Pole Motor-Generators serves three important functions:

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C—IMPROVES VOICE TRANSMISSION. To assure satisfactory voice transmission, the Battery Charger must maintain the output voltage of the battery as close as possible to a constant value. Transmitters may become noisy if they are subjected to an excessively high voltage, and may have to be replaced because of permanent damage.

Write for Bulletin 209

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the meter between the tips of the answering and calling cords, showing the trouble to have been cleared.

When a short-circuit condition is involved, connect the ohmmeter leads to the tip and sleeve of the calling plug, as shown in Figure 199.

Turn off the ringing power at the generator switch, operate the ringing key and note if the reading drops to zero. If it does, the short is not between the key contacts and the calling plug. Then operate the ringback key. The meter should read the resistance of the clearing-out drop, which is connected at the common strap between the ringback and ringing keys. If the normal reading is obtained, the short is in the answering cord beyond the ringback key.

Suppose that, in the foregoing preliminary test, a short-circuit indication was obtained on operating both the ringing and ringback keys. In this case, transfer the meter clips to the operating spring lugs connected to the answering cord, as indicated by the dashed lines in Figure 199. Then separate the contact springs at (3) with a piece of cardboard to isolate the rest of the circuit back to the calling plug. At this point, the meter shows a short-circuit reading, indicating the fault to be between the ringback key and the answering plug, possibly at the cord tip terminals. Examination of these terminals reveals that a short piece of bare wire has fallen across the terminals, causing the short. Removal of the wire causes the meter needle to drop to zero. *(To be continued)*

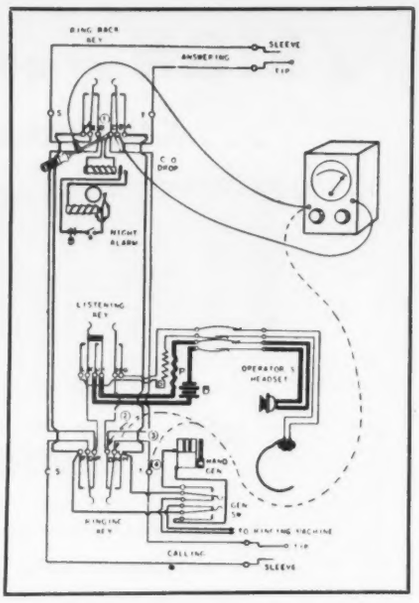

Fig. 200 — Point-to-point tests of a magneto cord circuit.

TO LOCATE AN OPEN IN RELAY AND TRANSMISSION CIRCUIT:
1 TO 2 . SHORT CIRCUIT (O.K.)
3 TO 4 . SHORT CIRCUIT (O.K.)
5 TO 6 . SHORT CIRCUIT (O.K.)
7 TO 8 . NO READING (SHOULD HAVE SHOWN SHORT.)
TO DETERMINE WHICH SIDE OF CIRCUIT IS OPEN:
7 TO 5 . SHORT CIRCUIT (O.K.)
8 TO 6 . OPEN (SHOULD HAVE SHOWN SHORT.)

TO LOCATE A SHORT IN SLEEVE CIRCUIT
1 TO 2 . LOW RESISTANCE READING
1 TO 3 . " " "
1 TO 4 . 5 OR 6 — SHORT
REMOVE LAMP. METER ACROSS 3 AND 4. LOW RESISTANCE READING (SHOULD HAVE SHOWN CLEAR)

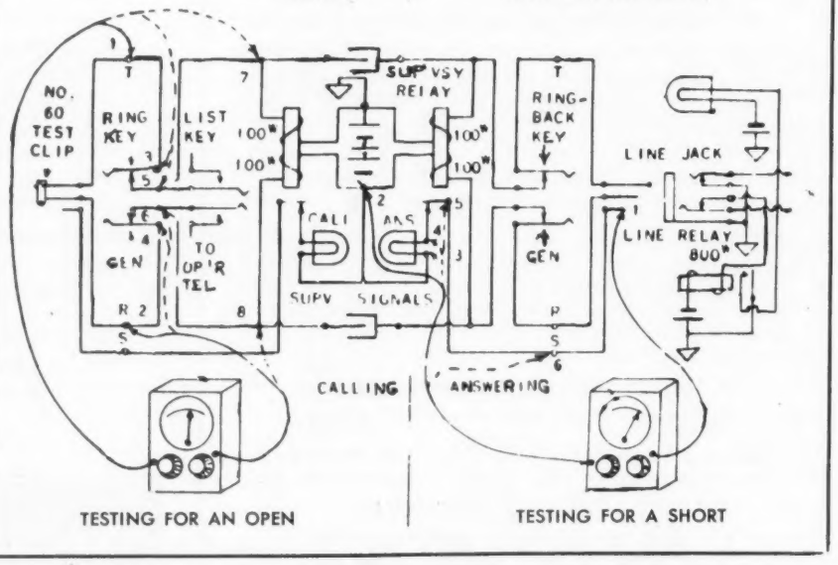

Fig. 201 — Locating faults in a common battery cord circuit.

According to the Fisher Research Laboratory, Inc., Palo Alto, Calif., the M-Scope Pipe and Cable Locator can be successfully used for locating comparatively small metal objects buried beneath asphalt, cement, soil, gravel, rock, snow, ice, brick, wood, plaster, and salt or fresh water. Metal objects are identified by a distinctive change of earphone tone as well as an indication on the visual meter. For additional information write the manufacturer.

Free Business Aids

The following literature is of special interest to members of the telephone industry. It is current and we suggest you make your requests for copies now while stocks are complete.

ADJUSTABLE WRENCH REPAIRS: How to get long, useful life from adjustable wrenches is the subject of a helpful pamphlet called "First Aid for Adjustable Wrenches," produced by *Utica Drop Forge & Tool Corp.*

Common ailments of long-used adjustable wrenches are dealt with in pictures, diagrams and "how-to-fix-it" copy. The pamphlet also includes information regarding proper care and handling of new and undamaged adjustable wrenches to help prolong their life and working efficiency.

Copies of "First Aid for Adjustable Wrenches" are offered free by *Utica* to factories and industrial groups, schools, trade associations and the like. Please address inquiries to *H. J. Zellweger, ad manager, Utica Drop Forge & Tool Corp., Utica 4, N. Y.*

CORROSION INHIBITORS: Two new illustrated bulletins on *Volatile Corrosion Inhibitors*, (VCI), a modern method of protecting ferrous metals and aluminum from rust and corrosion without using oil, grease, or goo, are offered by the *Berlin & Jones Co., Inc.*

Technical Bulletin VT-1 was written to serve as a general primer, or ABC of VCI and "VPI" corrosion inhibitors. Among the many subjects covered by questions and answers are: definitions of VCI, "VPI" and VIP; proper and improper applications; "bugs" to guard against; VCI as a control for finger print corrosion; toxicity; galvanic action; reactions with non-ferrous metals and non-metals; effects of moisture and condensation; shelf life and package life; plus other basic data.

General Bulletin GB-1 deals specifically with Berlin & Jones "DryVapor Pack-velopes, a positive protection for steel and aluminum." Cost saving and time saving advantages obtained from using these industrial engineered envelopes "In production"

(Please turn to page 70)

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Here's the quick, simple way to install underground pipe. With the GREENLEE Pusher *one man* pushes pipe *under* streets, walks, railways, lawns, flooring. No tearing up of pavement...eliminates extensive ditching, back-filling, tamping, tunneling, repaving. Cuts job time to a fraction. Two models to fit your jobs exactly—hand or power-pump operated.

Other GREENLEE tools for telephone work . . .

Do the job faster, better with high quality GREENLEE Car Bits for pole work . . . Electricians' Auger Bits of special design for electrical installation work . . . Bell Hangers' Drills of the "Feeler Bit" type . . . Expansive Bits for boring ½" to 4" holes . . . and GREENLEE Angle-Screw Drivers which eliminate pre-boring for angle-screw installations.

MACHINERY & TOOLS GREENLEE

Get facts on time saving Greenlee Tools. Write Greenlee Tool Company, 2012 Columbia Ave., Rockford, Illinois

At Christmas_

and all year 'round

Telephone people are good neighbors, as all of us in the business know. But usually their acts of community service are quietly done – as at Christmas time, when telephone men and women contribute trees and turkeys and baskets of food . . . dress dolls for orphaned children . . . remember service men overseas.

The advertisement across the page, appearing in national magazines for December, dramatizes this friendly spirit. It reminds readers that telephone people like to be helpful – on the job and off – keeping good will and The Voice with the Smile in service all year 'round.

THEIR FIRST CHRISTMAS AWAY FROM HOME

A whole Company of Marines said "THANKS"

How a group of telephone women helped to make it a Merry Christmas for the men in Korea

Santa's suit was made by a South Korean who had never seen or heard of Santa Claus. South Koreans also took turns in drawing the jeep trailer.

Helping others to have a Merry Christmas is a tradition among telephone people. In recent years there has been an increasing number of gifts for those in the service.

One group of telephone women observed last Christmas by sending a holiday package to every man in Company E of the 1st Marines in Korea. They adopted this company in remembrance of Corporal Richard E. deVilliers, a fellow-worker who was killed in action while serving with Company E.

Members of the TEVS, *the Telephone Employees Volunteer Service in San Francisco, holding the scroll of thanks from the Marines. It is one of their proudest possessions.*

You can imagine what happened when all those packages arrived.

The boys made quite an occasion of it. There was much scurrying around to get a Santa Claus suit. None was available but finally they found a South Korean who could sew and the job was completed after a lot of picture drawing and explaining. Then Santa was mounted on a trailer and drawn along in state.

After the packages were opened, a scroll of appreciation was signed by every member of the company and sent back to this country. More than two hundred of the men wrote letters of thanks.

"Your kindness," wrote their Captain, "brought happiness to the hearts of a group of Marines, many of whom were spending their first Christmas away from home."

It all turned out so well that it was decided to do the same thing again this year. So hundreds of packages are on their way across the seas to help make it a Merry Christmas in Korea.

THIS IS JUST ONE OF MANY WAYS in which telephone people in many communities say "Merry Christmas."

Whether it's dressing dolls for orphaned children, or contributing trees and turkeys and baskets of food, telephone men and women are spurred by the desire to be helpful. Through all the year they try to keep good will and The Voice With the Smile in telephone service.

BELL TELEPHONE SYSTEM

and "In Final Shipment" are enumerated and explained. An interesting comparison of old and new methods of corrosion control, citing specific examples, is included in Bulletin GB-1.

Free samples of DryVapor Packvelopes are also offered.

Any or all of the above may be obtained by addressing the *Industrial Packaging Division* of *Berlin & Jones Co., Inc., 601 West 26th St., New York 1, N. Y.*

DIAL CATALOG: *Leich Sales Corp.* has announced publication of a new catalog describing the Leich Dial System. This catalog, of 28 pages and printed in two colors, gives a complete description of the features and operation of the Leich system.

In addition to describing general features, it goes into detail on the method of operation, arrangement of equipment, building plans, jacking-in of equipment, all relay operation, power equipment and capacities.

Also, it lists a number of installations of interest to those planning dial installations of their own.

Copies of this catalog may be obtained by writing *Leich Sales Corp., 427 W. Randolph St., Chicago, Ill.*

GLASS-JAR BATTERY CATALOG: A new 20-page catalog titled, "Gould Stationary Batteries for Auxiliary Power and Control" has been published to help industrial users select and install the proper glass-jar batteries in control, alarm, telephone, switchgear and signalling services. It is featured by five full pages of specifications, in scale-drawn and tabular form, on steel racks for glass-jar batteries. This section presents recommended dimensions of such racks in single tier, two-step and three-step construction. One page is devoted to a drawing of a typical three-step structural steel battery rack with earthquake-proof bracing; the page includes a complete tabulation of materials required for such a rack.

The catalog portion discusses features, suggested uses and proper installation procedures for Flote, Plante and other types of stationary batteries. Exploded views show battery components and many tables present technical data, overall dimensions and weights for each type and capacity of battery. This catalog, the first to compile all this manufacturer's glass-jar specifications in a single volume, is available without charge from *Gould-National Batteries, Inc., Trenton 7, N. J.*

POLES:—*J. Neils Lumber Co.*, (Pole Division), Libby, Mont., has published two informative pocket booklets entitled "*Look To Larch For Better Poles*" and "*The Big Three In Western Poles*". Copies may be obtained direct from the J. Neils Lumber Co.

RELAYS: A complete line of telephone-type relays, including hermetically sealed (in metal and glass containers) sub-miniature, plug-in types, etc., is described in a new, color-illustrated brochure released by *Automatic Electric Co., 1033 W. Van Buren St., Chicago 7, Ill.* Request Circular 1702-A.

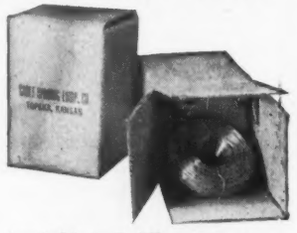
SAFETY: — The Du Pont Company's employees are just about four times safer at work than they are at home or any place else, even when

Put the "B" on Your Problems

The Neale Model B is designed for one-man operation. It may be used with equal effectiveness for spinning new cable or maintenance spinning of existing cable. This machine is easy to transfer at pole . . . simply by removing the gate in the spinner head. Many telephone companies . . . large and small . . . have reported success in using this cable spinner to reduce outside plant costs and solve problems of new construction and maintenance.

Contact Your Jobber

For Best Results Use Neale Wire



Available in 7 different types . . . all made to meet the toughest construction and corrosion problems.

THE WORLD IS SPINNING—TOO! PHONE 2-7234-5

Cable Spinning Equipment Co.

3100 TOPEKA AVE. TOPEKA, KANSAS

their jobs call for handling high explosives or volatile chemicals. These facts are disclosed in "The Store of Safety," a new booklet published by the company recently.

Industry's safety program, the 28-page illustrated booklet says, is spurred by realization that safety is simply sound business procedure. It's not the result of external pressures of laws or regulations.

"Rules, ordinances and regulations," the booklet says, "have played their part in setting standards and defining uniform practices, but safety has not been achieved by the letter of law any more so in industry than on the highway, where a vast body of laws and limits have failed to avert accidents. Safety on-the-job has come because industry well recognizes that in improved morale, increased efficiency and enlarged productivity, it pays attractive dividends.

"Thus in this field, as in so many others, industry has shown that progress stems from new methods and new technology, applied to human welfare through the simple and direct channel of mutual benefit."

The basic principle of Du Pont's safety performance, the booklet points out, is simple: Safety is the responsibility of management, in all phases and at all levels of organization. Every member of supervision, from the newest foreman to the top level authority, is responsible for the safety of the men and women working with him. Safety practices, subject to continual attention and revision, attempt to anticipate every possible risk that may arise, on the theory that well-trained people, using every available precaution, can avoid all personal injuries.

Copies of the booklet may be obtained from — Public Relations Department, E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.

SAFETY MARKING TOOLS: Over 100 different marking tools and devices are described and illustrated in the new 28-page Mecco Safety Marking Tool catalog published by *M. E. Cunningham Co.*, Pittsburgh, Pa. This brochure includes photographs of the various products; descriptive material; catalog numbers; and in cases where the information applies, charts of the various sizes.

In addition to the products themselves, the catalog includes informa-

ACORN INSULATED WIRE

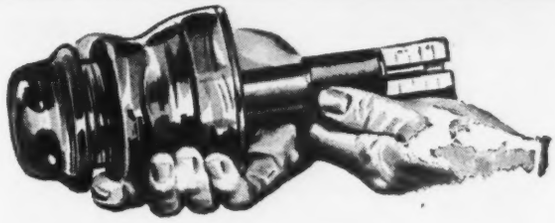
Quality WIRE for Every Telephone NEED

DROP WIRE
BRIDLE
SWITCHBOARD
TREE
GROUND
BURIED WIRE

INTERIOR
POTHEAD
CABLE TERMINAL
INSTRUMENT
FIXTURE
PLASTIC INSULATED

ACORN INSULATED WIRE CO., INC.
36 Freeman St., Pawtucket, Rhode Island
LEICH SALES CORP., 427 Randolph St., Chicago.
LINDSAY TELEPHONE SUPPLY CO., 7016 Euclid Ave., Cleveland, Ohio.

Drop Wire—Bridle—Interior—Tree—Ground—Switchboard—Pothead—Cable Terminal—Instrument—Fixture—Buried Wire



Pre-tested for accurate fit

You can be sure Armstrong's Glass Insulators fit pins perfectly. Tight factory controls, including hand-gauging, insure uniform accuracy of thread contour. There's no rocking or wobbling on pins—you get a tight fit every time.

These rugged insulators are molded of tough industrial glass to stand up under heavy loads without breaking. They're highly resistant to weathering and surface leakage—tested to withstand thermal shocks more severe than any met in service. Their smooth, flat seams make them completely safe for linemen to handle.

Get further information from your supplier or write Armstrong Cork Company, Glass and Closure Div., 295 Fifth Ave., New York 16, N. Y.

ARMSTRONG'S GLASS INSULATORS
for communications . . . for power

Runzel

TELEPHONE CORDS

HAND SET CORDS

OPERATORS RECEIVER CORDS

OPERATORS BREAST-PLATE CORDS

Quality Cords...

FOR ALL MAKES AND TYPES OF INSTRUMENTS

When cord replacements are needed...

specify **RUNZEL**

RUNZEL

Cord and Wire Co.

4723 W. MONTROSE AVE.

CHICAGO 41, ILL.

tion on Mecco Safety Steel, a specially-developed alloy which is said to reduce spalling and mushrooming, and increase marking life. Almost all products in this line are made of Mecco Safety Steel; the few which are not, such as Luminum-Line Holders, are made from special alloy aluminum to resist damage from impact.

Copies of this catalog, No. 100, may be obtained from *M. E. Cunningham Co.*, 1095 *Chateau St., Pittsburgh* 33, *Pa.*

SELF-PRIMING PUMPS: Rice Pump & Machine Co., Grafton, Wis., has announced the availability of Bulletin 52, complete with details and specifications of all models from the 2″-7,000 G. P. H. size to the 4″-40,000 G. P. H. portable, self-priming Centrifugal Pumps.

Rice is now building all sizes, each one guaranteed to meet A.G.C. Rating and Capacity Standards. All models feature modern, light weight, 4-cycle, air-cooled gasoline engine power, and sizes from 7M to 40M are also available with pulleys for belt drives and flexible couplings for direct-connected electric motor drives.

Rice Pumps feature bellow-type shaft seals entirely enclosed within a cartridge; non-clog, trash-type impeller; hardened steel wear plates; built-in check valve; large clean-out openings and direct line flow of water through the suction opening to the impeller. Most sizes are available on pneumatic tired wheels, steel wheels, or steel skids. Wheelbarrow mountings available for 15M and smaller sizes.

TOOL CATALOG: *Utica Drop Forge & Tool Corp.* is offering it's new and improved tool catalog *No.* 66-1952 which is replacing Utica catalog No. 63-D currently in use.

A special feature of the catalog, of great interest to the industrial tool user, as well as the hardware trade, is the accurate diagraming of the tool jaws, with accurate dimensions. Utica states this is practical because of the close tolerances to which the tools are held.

The 24-page catalog, well illustrated, contains a useful list of decimal equivalents and pertinent data on all Utica tools in many sizes — 82 models of pliers, regular and custom-built, Utica's complete line of adjustable wrenches and full descriptions of ten Utica displays.

Requests for *Utica Catalog No.* 66-1952 should be directed to *H. J. Zellweger, ad manager, Utica Drop Forge & Tool Corp., Utica* 4, *N. Y.*

TRENCHER: A new bulletin fully describing the Cleveland Model 95 trencher has been published by the *Cleveland Trencher Co.* Long-time

(Please turn to page 74)

Mountain Roads

YOU CAN'T CLIMB a mountain in a minute. If mountain roads went straight up the mountain, the force of gravity would be so great that no automobile or railroad engine would have the power to climb them. A mountain road winds around and around, back and forth, to cut down resistance. Often it may not seem that you are climbing at all, but if you keep on, you eventually will arrive at the summit . . . and the winding road is the only way to get there.

The winding-road technique also is the best way to climb to the summit of the success mountain. When you try to high-pressure your way straight up the success mountain, you meet with tremendous resistance. When you take the winding road, going along with the customer's wishes, talking his language, giving service, quietly making your points in harmony with his needs, it may seem to take a little longer, but it is the most certain way to get to the top of the success mountain where awards wait for you.

Remember, too, that the bigger the mountain the longer and more winding the road will be. The bigger the customer, the more winding the road will be, too. But whether it is a big mountain or a big customer, if you have the patience, courage and perseverance to keep winding and climbing, the summit of the highest mountain can be conquered. — (*Author Unknown.*)

PILOT PLANT—Western Electric and Bell Laboratories people prepare one type of transistor for large-scale production.

Revolution in the making!

You've heard about transistors . . . the tiny, mechanically simple devices that promise to turn the whole field of electronics upside down, revolutionize it! They can do many things done by vacuum tubes . . . yet their greatest possibilities may lie where vacuum tubes have not been used.

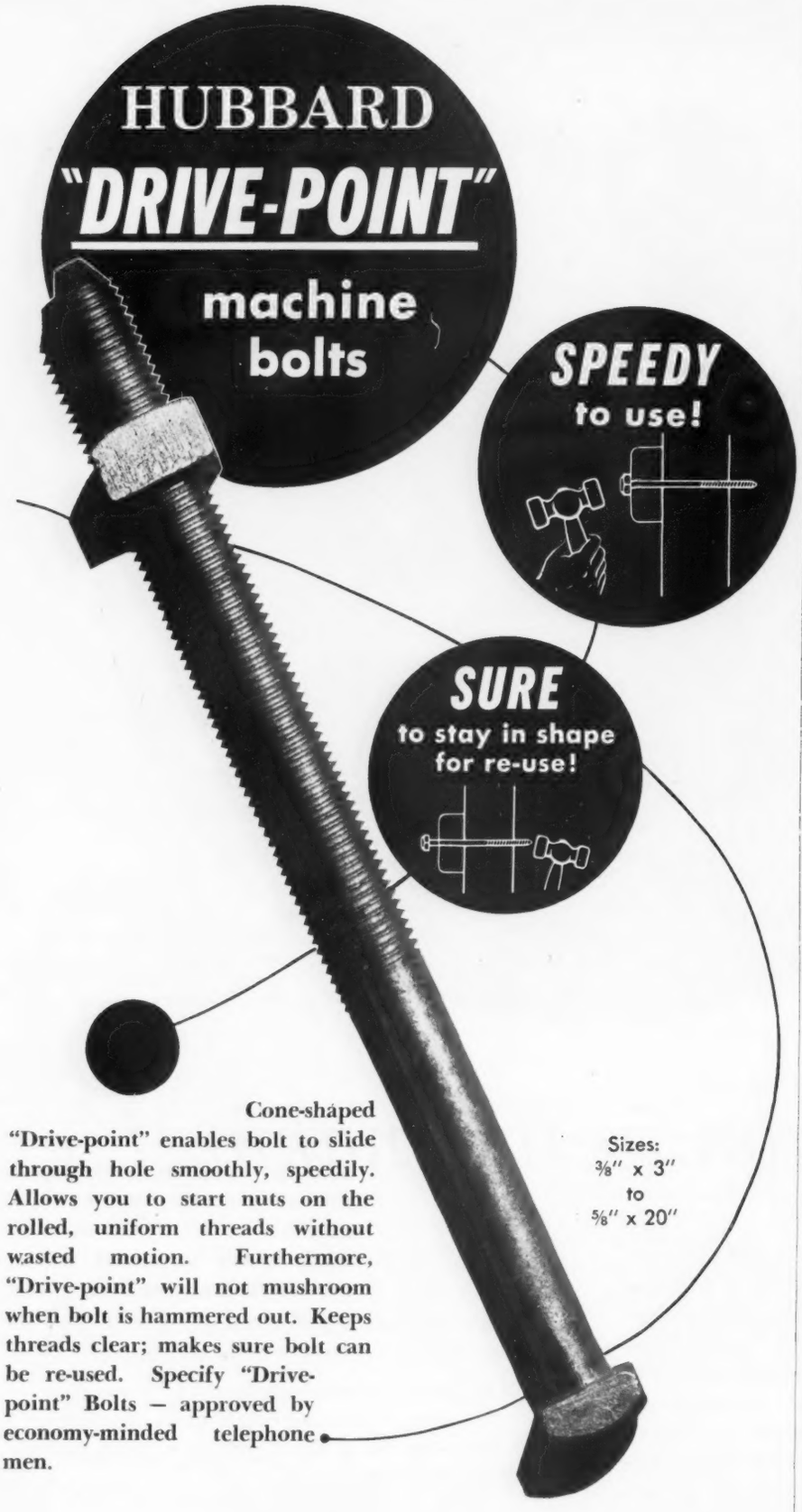
Right now transistors are being put to work in the Bell System and in varied types of military equipment. They are proving very valuable in computer circuitry. In telephony and in other fields, there seems to be no limit to their application.

Already, Western Electric has granted licenses to 36 industrial producers to make transistors.

This is just one more example of a long-standing policy in action . . . making Bell System inventions available to the rest of the telephone industry and to industry at large.

Western Electric

A UNIT OF THE BELL SYSTEM



Cone-shaped "Drive-point" enables bolt to slide through hole smoothly, speedily. Allows you to start nuts on the rolled, uniform threads without wasted motion. Furthermore, "Drive-point" will not mushroom when bolt is hammered out. Keeps threads clear; makes sure bolt can be re-used. Specify "Drive-point" Bolts — approved by economy-minded telephone men.

Sizes:
3/8" x 3"
to
5/8" x 20"

Recommended and Sold through our Distributors

AUTOMATIC ELECTRIC

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

favorite with contractors and utility companies, the Model 95 is the standard machine for city and suburban work. Copy stresses job applications and outstanding features.

Center-spread of the 8-page, 2-color bulletin is a detailed study of Cleveland design, materials, and construction. Complete information is provided on component parts — from the 320 cu. in. engine to the rooter tips on the buckets. A numbered outline photograph positions each important part.

Plenty of on-the-job photographs show the 95 operating under various job conditions — on all types of trenching projects. Complete dimensions and specifications are given, including tables of optional trench widths and digging wheel and traction speed combinations.

Copies of the Cleveland Model 95 folder may be obtained without obligation by writing on business stationery to the *Cleveland Trencher Co.*, 20100 *St. Clair Ave., Cleveland* 17, *Ohio.*

Worth Repeating

MANY OF US are so busy doing things tomorrow that we are too tired to do our work today. — *Olin Miller.*

OUR TIME HERE is limited, hence we should waste none of it. Let us determine to not defer the doing of kind deeds, especially to those less fortunate than ourselves. The friendship we radiate, and the consideration we give to others will make our own path less difficult to travel. — *Frank E. Mitchell.*

THE WORLD would be a lot better if everyone would spare a few minutes now and then to make the area surrounding him a little better. — *Oliver W. Holmes.*

GIVE ME THE benefit of your convictions, if you have any, but keep your doubts to yourself, for I have enough of my own. — *Goethe.*

Long Lines Files Plans: For $32,000,000 Program

THE LONG LINES department of the Bell System companies has filed plans with the Federal Communications Commission outlining a 1953 construction program costing about $32,000,000. Plans provide for installing some 3,000,000 channel miles of telephone facilities, about 680,000 miles of telegraph channels for private line telegraph and teletypewriter exchange service and extensive additions to radio and television networks.

It also is planned to equip four coaxial tubes on the Philadelphia-Chicago route to more than triple the number of telephone circuits now in use. Also planned is a cable project that provides for construction of coaxial cable between Newark, N. J., White Plains, N. Y., and New Haven, Conn. The installation of this route is part of the long lines decentralization plan for the establishment of routes by-passing larger cities.

REA Holds Two Meetings For Engineers

REA recently conducted a symposium for engineers interested in REA-financed telephone construction to discuss the agency's design and construction specifications and procedures. The symposium was in two sections — one meeting was held in Washington November 17 to 25, and the other in Cheyenne, Wyoming, December 1 to 19, 1952. Programs for the two sections were similar.

Invitations were mailed to all consulting enginering firms that have expressed an interest in the new REA telephone loan program, and the agency welcomed qualified firms.

The meetings included an explanation of the construction specifications in the standard REA construction contract, by means of movies, discussions, three-dimensional exhibits and demonstrations. Other subjects covered included numbering, traffic, connecting company agreements, telephone electronic equipment, and many others.

K. Woodrow Benckert, Chief of the REA Telephone Engineering Division, presided at the Washington section and Assistant Chief Hoburg B. Lee at Cheyenne. Engineers on the REA staff lead discussions.

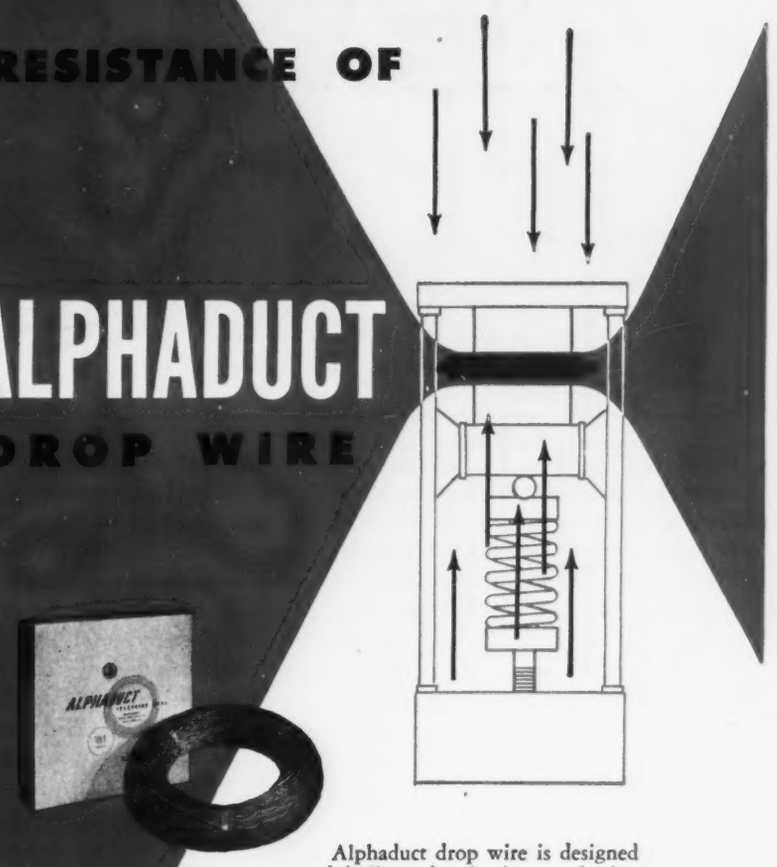
"The purpose of these conferences,"

1500 pounds

MINIMUM COMPRESSION RESISTANCE OF

ALPHADUCT

DROP WIRE



Alphaduct drop wire is designed and built to be the longest lasting drop wire you've ever installed. It's tested . . . completely, thoroughly and often to make sure that every single coil is up to Alphaduct's rigid standards.

Here's how the insulation is tested to make sure it won't crush.

Short lengths of Alphaduct are placed between the steel plates of a compression testing machine. These plates are then forced together at uniform speed until the insulation crushes. Alphaduct parallel drop wire has to withstand a minimum load of 1500 pounds before it breaks. Each conductor of Alphaduct twisted pair will withstand a 1000 pound pressure.

You don't have to worry about a little rough handling breaking down this kind of tested insulation. Try Alphaduct drop wire. It's dated, so you can see for yourself the extra wear it provides.

ALPHADUCT WIRE AND CABLE COMPANY • MILLTOWN, NEW JERSEY
NATIONAL DISTRIBUTORS • LEICH SALES CORPORATION, CHICAGO, ILLINOIS
REGIONAL DISTRIBUTORS • PANKEY SUPPLY CO., CHARLOTTESVILLE, VA.
THE LINDSAY TELEPHONE SUPPLY CO., CLEVELAND, OHIO

Benckert said, "is to let private engineering firms learn all we can show them about what our needs are, and for our people to learn all we can about what they are up against. We hope that when we get through, both sides will be able to work more quickly, more efficiently, and more economically to get telephones ringing in our farm homes."

Major General Leavey Elected Kellogg Director

KELLOGG Switchboard & Supply Co., Chicago, Ill., has announced that Major-General Edmond H. Leavey, U.S.A. retired, has been elected a director of the company. General Leavey, a vice-president of the International Telephone & Telegraph Corp., retired from active duty July 31, 1952, after a distinguished military career. His most recent assignment was chief of the Logistics Division, Supreme Headquarters of the Allied Powers in Europe.

Bendix Names Cleaves To Sales Manager Post

REAR ADMIRAL Willis E. Cleaves, U.S.N. (Ret.) has been named general sales manager of Bendix Radio Communications Division of Bendix Aviation Corp. He succeeds Arnold Rosenberg who has resigned.

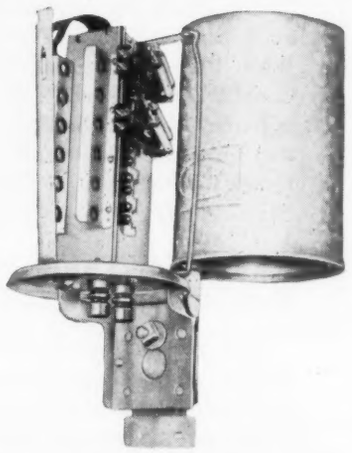
Admiral Cleaves, who was formerly director of aviation sales for Collins Radio Co., recently joined Bendix as assistant to the general manager. A graduate of the Naval Academy with the class of 1924, Admiral Cleaves was among the first group of his class to enter naval aviation, earning his wings at Pensacola Naval Air Station in 1926. As officer in charge of the radio and electrical section of the Bureau of Aeronautics from 1939 to 1941, Admiral Cleaves was active in guiding an important part of the Navy's expansion during World War II.

Bishop Announces New Insulating Tape

BI-PRENE, a self-affixing neoprene electrical insulating tape has been announced by the Bishop Manufacturing Corp., Cedar Grove, N. J.

According to the manufacturer, this easy-to-apply tape provides a splicing medium with a high degree of oil and solvent resistance, when vulcanized, plus outstanding dielectric strength and aging qualities. Bi-Prene conforms to irregular surfaces when wrapped under normal taping tension, and may be cured in a field or factory patching press to produce a smooth, eye appealing splice. The curing time is directly related to the depth of the splice section and the

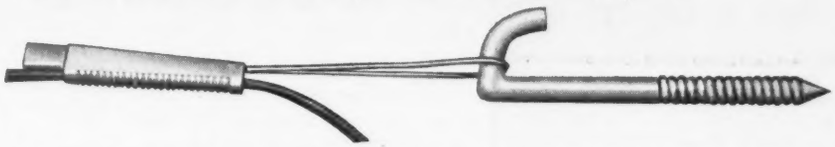
(Please turn to page 78)

Construction Ma
With the Double
and America's
versatile new
S-20 V
cable terminal

takes any size compression coupling from 6 pair to 51 pair...
Made with two cable entrances for use with plastic cable, the new Cook S-20 V Cable Terminals simplify cable installation.
They can be ordered in advance without compression couplings—and the couplings and pipe plug ordered later to conform to the specific cable layout. *Or,* if plastic cable additions are ever needed, the compression couplings can be easily adjusted *in place* to conform to the revised cable layout without removing the S-20 V Cable Terminals from the poles.
The S-20 V can be used separately or as part of the Cook Trans-Mount System of Protection and Distribution. All hot galvanized steel construction, the complete terminal is designed for maximum service under all conditions.
Mfd. by Cook Electric Co.
STROMBERG Telephone CARLSON
TELEPHONES, SWITCHBOARDS • SOUND

Materials and Supplies . . .

Guarantee of Stromberg-Carlson Leading Manufacturers . . .

reliable *drop wire clamps*



Manufactured by **RELIABLE ELECTRIC COMPANY**

TYPE "P"—for No. 17 parallel reinforced. Holds drop wires at moderate tensions, but concentrates pressure on small area under heavy loads.

TYPE "PS"—for No. 17 and 18. Particularly for smaller, weaker wires. Even under breaking loads the "PS" supports drop without damage.

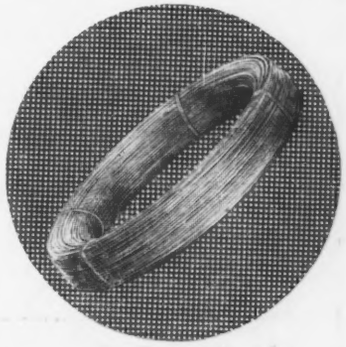
Reliable Drop Wire Clamps are unique in that they:

1. Prolong life of drop wires by permitting free swinging at the support, placing all wear on the hardware.
2. Permit stringing and sagging of service drops before cutting wire.
3. Automatically tighten under load, assuring a firm grip without damaging insulation.
4. Eliminate sharp bends in wire.

"Reliable identifies the quality"

crapo high-tensile line wire

Reduces Over-all Costs



A net saving of 10 to 15 or more pole structures per mile is possible where *Crapo* High-Tensile Telephone Line Wire is used in long-span construction. Fewer pole structures mean substantial savings in time, labor and material, and in maintenance.

Crapo HTL-135 makes possible spans of 350 feet in heavy, 450 feet in medium, and 500 feet in light loading areas. Its practical economy should be considered for new extensions and where old lines are to be replaced.

Crapo HTL-85 (No. 12 B. W. G.) permits spans of 225 feet in heavy, 325 feet in medium, and 375 feet in light loading districts; provides stronger spans on existing pole structures. Both wires possess superior telephonic transmission qualities.

Write for Manual of Engineering Data and Construction Practices for *Crapo* High-Tensile Telephone Line Wire!

the new "1400" series Stromberg-Carlson telephone

comes in 7 assorted "styles"!

There's not a need in telephony which the "1400" series hasn't foreseen—and met! Adaptable as desk set or wall phone—for manual or dial use—and can be used with practically any current American made dial. Ask for complete descriptive brochure.

Distributed by STROMBERG-CARLSON

ROCHESTER 3, NEW YORK

EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL INTERCOMMUNICATION SYSTEMS • TELEVISION, RADIOS AND RADIO PHONOGRAPHS

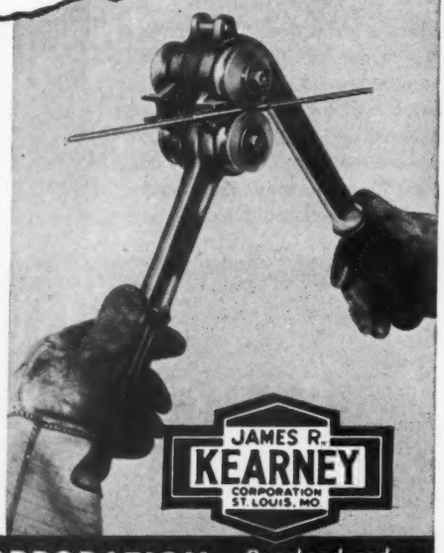
'52
P&H
PENTA
PENTA
POLES
FULL LENGTH TREATED NORTHERN WHITE CEDAR

The full length treatment protects Penta poles from top to butt. Their long life assures low per annum cost lines—proven by ten years use.

PAGE AND HILL, INC.
MINNEAPOLIS, MINN. • 50 CHURCH ST., NEW YORK, N. Y.

Speed Up Construction and Repair

Eliminate High Resistance Joints by Using Kearney Splicing Machines and Sleeves



By the application of a tremendous pressure, uniformly applied over the entire length of the splicing sleeve, Kearney Splicing Machines provide a splice that exceeds the breaking strength of the conductor.

The job is done quickly and neatly with these well balanced, easy-to-use splicing machines. They are made to extremely close tolerances, from highest quality materials to assure long life. For the best possible job always use Kearney Sleeves with Kearney Splicing Machines.

See your jobber or write to

JAMES R. KEARNEY CORPORATION
4236 CLAYTON AVE. • ST. LOUIS 10, MO.
Overhead and Underground Utility Equipment

mold temperature. In most applications, the curing process can be accomplished in a matter of minutes, and at temperatures not exceeding 310°F.

Bi-Prene is available in 30 ft. rolls, .030″ thick, in standard widths of ½″, ¾″, 1″, 1½″ and 2″. In addition to tape form, Bi-Prene compounds can be furnished in bulk on special order. Also, other neoprene compounds can be supplied to specification.

For additional details or specific application data, please address inquiries to Bishop Manufacturing Corp., 14 Canfield Road, Cedar Grove, N. J.

Federal Tel. Advances Harold R. Hunkins

THE APPOINTMENT of Harold R. Hunkins as chief engineer in the Selenium-Intelin Division of Federal Telephone & Radio Corp., Clifton, N. J., associate of International Telephone & Telegraph Corp., has been announced by Henry C. Roemer, president of Federal.

Mr. Hunkins, who has been with Federal for eight years, is the former project manager for three of the company's government contracts. Previously he was in the Wire & Radio Transmission Division, first as product line manager, then as chief systems engineer and finally as sales

Gerald A. Petersen, of Petersen Engineering Co., Santa Clara, Calif., accompanied by Mrs. Petersen, sailed recently aboard the Queen Elizabeth on the first leg of a round-the-world tour during which the "Pengo" line of earth augers will be introduced in virtually every country outside the Iron Curtain.

A major objective of the trip will be to complete negotiations for manufacturing arrangements under "Pengo" patent licenses in the British Isles and on the continent, similar to an arrangement now operating in Australia, Mr. Petersen stated.

manager. In his new position he directs the design of new products and the development of new processes and material for the Selenium-Interlin Division, which produces selenium rectifiers; high frequency coaxial cable, television lead-in wire and other wire products in Federal's Clifton and East Newark plants.

Joining I. T. & T. in 1929, Mr. Hunkins served for several years in the International Telecommunication Laboratories and in the old Postal Telegraph Co. He was assigned to Federal in 1944 as product line manager in the Wire Transmission Division.

Harry Condon Retires; Arnold Named Successor

HARRY R. CONDON, vice president and general manager, Wood Preserving Division of Koppers Co., Inc., since March, 1950, retired Nov. 30 after 25 years with Koppers or companies which since have become a part of the Koppers organization.

Election of Walter P. Arnold to succeed him was announced by General Brehon Somervell, Koppers chairman and president. Mr. Arnold has been vice president and executive assistant to the general manager of the division.

Connecticut Tel. Announces New Wall-Desk Phone

A NEW "all-in-one" telephone, a combination wall-desk instrument designed to fit any application with a minimum of modifications has been produced by the Connecticut Telephone & Electric Corp., Meriden, Conn. The telephone is actually a universal local-battery telephone which can be converted to a manual common-battery telephone without adding either electrical or mechanical parts. The new telephone also can be converted quickly and easily to a common-battery dial telephone merely by the addition of a dial and dial bracket.

Called the Connecticut Wall-Desk telephone, it can be used on either wall or desk without alterations of any kind, thus necessitating only one stock of replacement parts.

The new telephone is built to meet all the latest military specifications. It has been built to withstand unusual abuse and extreme climatic con-

(Please turn to page 80)

To Give You Trouble-Free Protection...

NEW TYPE 18 SUBSTATION PROTECTOR

FEATURING AUTOMATIC ELECTRIC'S NEW TYPE 70 DISCHARGE BLOCK

- **SAVES COSTLY "CLEARING TRIPS":** The new Type 70 "DOLLAR-SAVER" Discharge Blocks (0.003" gap) ground automatically to drain lightning and power surges, then *clear themselves.*
- **SAVES MAINTENANCE:** Roomy interior allows quick, easy replacement of 7-ampere Type 21 vented fibre fuses.
- **STAYS WEATHERPROOF:** Seamless drawn-aluminum cover can't rust. Keeps water *out!*
  Listed by U.L. Rigorously tested. Guaranteed dependable!

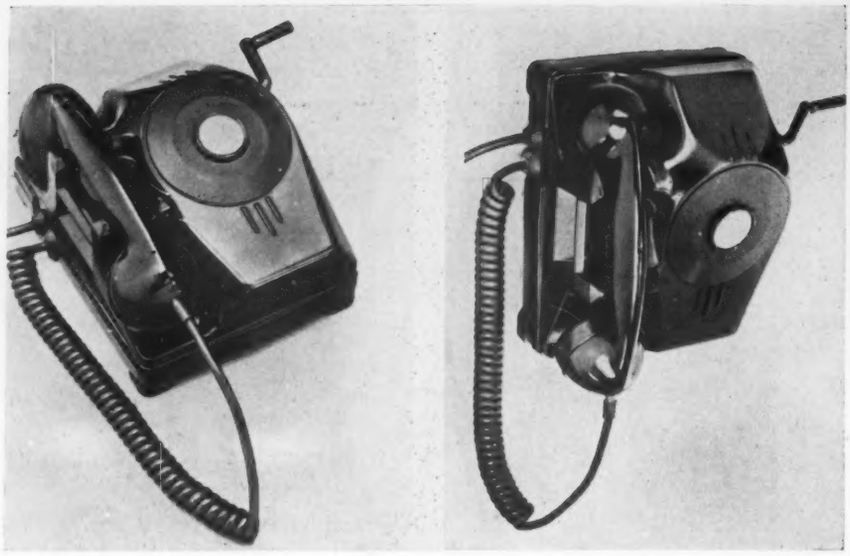
Read all about Type 18 and our complete line of trouble-eliminating protective equipment. Write for New Catalog 4068-B today!

Cat. No.	Type 18 Substation Protector	Shipping Wt.
SB-18	2¾"x7½"x2¾"	2¼ lbs.

Product of the Telephone Specialty Department of

AUTOMATIC ELECTRIC

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.



New "all-in-one" telephone (above) has beep produced by the Connecticut Telephone & Electric Corp., Meriden, Conn. The new set, called the "Connecticut Wall-Desk Telephone," can be used on either wall or desk without alterations of any kind.

ditions. The handsets, equipped with Koiled Cords, are molded of a special thermoplastic material capable of resisting breakage when dropped from a height of twenty feet to a concrete pavement. The telephone is supported by substantial rubber feet to prevent sliding on desks.

The Connecticut Wall-Desk telephone will feature a new hook-switch consisting of two sensitive enclosed switches thoroughly sealed from dust.

All parts of the telephone may be removed or interchanged with no other tool than a screw-driver, enabling quick repair and maintenance.

The instrument will be sold with or without the four-conductor desk cord, depending upon whether or not connections will be made directly to the telephone or at the connector block. A convenient screw-type terminal board is mounted inside the telephone for ease in connecting the desk cord or line wires.

Washington Bureau Reports

(Continued from page 37)

tended by the following industry representatives: C. C. Duncan, operating staff manager of the American Telephone & Telegraph Co. Long Lines Department; Cole A. Armstrong, AT&T defense activities engineer; Charles M. Mapes, AT&T assistant chief engineer; James E. Dingmaan, Bell Telephone Co. of Pennsylvania, vice president, who since the meeting has been named executive vice president of the Bell Telephone Laboratories; L. W. Hill, Carolina Telephone & Telegraph Co. president; Fred G. Macarow, Chespeake & Pontomac Telephone Co. vice president; R. A. Lumpkin, Illinois Consolidated Telephone Co. president; Carl D. Brorein, Peninsular Telephone Co. president; Frank S. Barnes, Rock Hill, S. C., Telephone Co. president; C. J. Yates, Southern Bell Telephone & Telegraph Co. general commercial manager; Rupert E. Shotts, Telephone Services, Inc., vice president; and Joseph A. Redman, Western Union vice president. — THE END.

High Interest Shown In Nebraska Meetings

ATTENDANCE records fell in every section of the state of Nebraska during the recently completed district meetings sponsored by the Assistance Committee of the Nebraska Telephone Association. Over 160 telephone men and women attended the four one-day meetings. They came from 78 different telephone companies within the state and three companies in Colorado.

Last May the Nebraska Assistance Committee was reorganized and greatly enlarged. The state was di-

(Please turn to page 82)

Construction M

With the Double
and America's

gould planté . . .
the aristocrat of stationary batteries

Many Planté batteries are still in active full-float service after twenty, thirty, even forty years! That's because Planté plates are heavy, solid sheets of pure lead. In these batteries Gould has eliminated the primary cause of self-discharge, capacity losses and shortened battery life. Cut maintenance, charging and replacement costs to a minimum. Choose Planté.

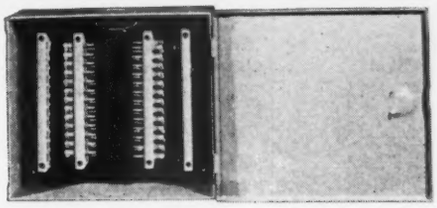
Made by
GOULD-NATIONAL BATTERIES INC

STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS, SOUND

Materials and Supplies . . .

Guarantee of Stromberg-Carlson Leading Manufacturers . . .



cook type "57" interior terminal box

The type 57 interior terminal box is for distribution and termination of lead-covered or loom cable for low-voltage circuits. The box itself which has an Underwriters' Laboratory listing is constructed of smoothly enameled steel, with hinged cover and necessary knock-outs. Fanning strips and terminal strips are provided as well as screw connectors on the drop sides and solder clips for cable wires.

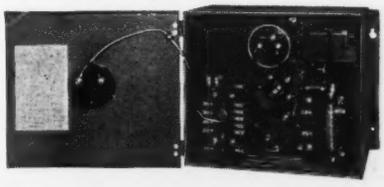
. . . bigger savings plus better service with

Raytheon RectiFilteRs*!

For more than a decade, leading independent telephone companies have found that Raytheon RectiFilteRs are the most economical and efficient way to supply steady DC power to PBX boards directly from an AC source.

With no moving parts, the Raytheon RectiFilteR requires neither adjustment nor maintenance. It will outlast many sets of batteries, release wires carrying charging current from central office to subscribers' PBX boards for revenue producing service, and minimize power cost because of high efficiency in converting from AC to DC.

Dry disc rectifying units and other components are designed for long-life, trouble-free service. The Raytheon RectiFilteR will end your telephone power problems. Just plug it in, close the door —and forget it!



RFR 1044-G RECTIFILTER WITH DOOR OPEN

*Reg. U.S. Pat. Off.

revenue-saving *in long-lasting poles is yours when you use*

DIAMOND C POLES

Now better than ever, as made in Colfax Lumber & Creosoting Co.'s NEW plant

All Diamond C poles are carefully selected from trees growing in the heart of the famous Southern Yellow Pine belt. Each pole is graded according to physical properties desired and pressure-treated with 8 lbs. (more, if you want it!) of grade No. 1 creosote oil, per cubic foot of wood. A new and modern treating plant promises better-than-ever quality and faster deliveries.

Have the lowest possible annual pole cost. Specify . . .

DIAMOND C

Distributed by STROMBERG-CARLSON

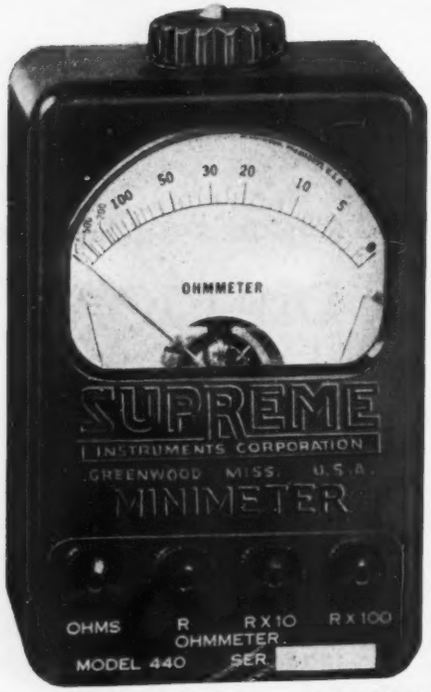
ROCHESTER 3, NEW YORK

EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL INTERCOMMUNICATION SYSTEMS • TELEVISION, RADIOS AND RADIO-PHONOGRAPH

MINIMETERS

SMALL IN SIZE . . . BIG IN PERFORMANCE

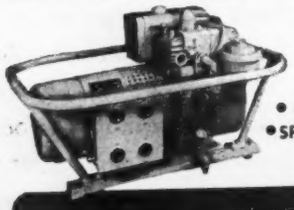
by **SUPREME**



The Supreme Model 440 Ohmmeter, a truly "vest pocket" instrument about the size of a cigarette pack, is a favorite companion of telephone men everywhere. Its popularity does not come from size alone. Inside the molded case is a genuine Supreme jeweled meter movement with that famous tough pointer. It is a quality instrument throughout.

Convenient size and durable construction for portability. Built with highest quality materials and workmanship for dependability. Quantity production for a budget price. Write for additional information on the Supreme Model 440 Ohmmeter and other instruments in the Minimeter family.

Our 25th Year **SUPREME, INC.** GREENWOOD 19, MISSISSIPPI



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• SPEEDS WORK

KATOlight *Portable* **POWER for your crews!**

KATOLIGHT has portable dolleys and carrying brackets, making Katolight Plants easily available to plug in time-saving equipment such as light saws, drills, manhole heaters, and other electrical tools.
Gasoline models from 350 Watt through 45 KVA. DC Models available 500 watt through 15 KW in standard voltages for continuous and standby service.
Also Multi-Frequency ringing Power Equipment.

Flood or Spot Light

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Drills and Tools

Manhole Heaters

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Box 491-18 Mankato, Minnesota

Thompson Chemicals

FIRST NAME IN BRUSH KILLERS

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vided into four districts with six men assigned to each district committee. The four chairmen of each district make up the General State Committee. All committeemen were called to a state wide meeting at Grand Island, Nebr., for a kick-off meeting. The aims, purposes and plans of the committee were explained and the committeemen were given assignments for taking a state wide survey into conditions and problems of the industry.

The survey was completed within three months and the published results indicated there was work to be done. Each district then held a meeting to discuss the general survey and to undertake a detailed survey of certain selected companies in bad condition. This detailed survey is still in progress and plans are being formulated for each committeeman to take an assignment of a specific company in need of help.

Along with the assistance program the commitee undertook the sponsorship of four district meetings this fall. It was the committee's belief that the meetings should not only be informational but that they should also be schools of instruction and guidance. Meetings were planned on this basis and in furtherance of the "school" idea, printed outlines of each topic on the program were handed to each company in attendance. The committee intends that outlines of future meetings will also be made available and that in a short period of time the outlines will constitute material for a highly useful notebook. The Association will prepare indexes for those desiring to retain the material.

The programs this fall were kick-off meetings for a planned series of future programs. The same program was used at each meeting and included, "Types of Business Organizations and Related Financing", by M. K. James, district sales supervisor, Northwestern Bell Telephone Co., North Platte; "When and How to Obtain a Rate Increase", by James L. Morrison, secretary-treasurer, Nebraska Telephone Association, Lincoln; "How to Keep Books For The State Railway Commission" by J. A. Bonebright, accounting specialist, State Railway Commission, Lincoln, and "Planning the Rural Rebuilding Job," by Ray Clinton, maintenance inspector, The Lincoln Telephone &

Telegraph Co., Lincoln. Following Mr. Clinton's talk copies of the book "Rebuilding the Rural Outside Plant", by John S. Reed were made available through the cooperation of the publisher.

The meetings were held at Ogalalla, Holdrege, Hartington, and Beatrice. Following each meeting those in attendance were asked to express the opinions and desires on future meetings. The response was so encouraging that the Nebraska Association is now planning for two sets of meetings for 1953 and will include traffic conferences. The Assistance Committee will play a major role in planning and staging these meetings.

Members of the Assistance Committee are:

West District — Webb Flaming, Elsie, Vern Allen, Scottsbluff, G. L. Jorgensen, Hershey, J. H. Raile, Benkleman, Russell Brothers, Dix, and M. K. James, North Platte.

West-Central District — M. J. Barr, Kearney; J. G. Richards, Alma; J. G. Pearce, Sargent; Neil Shreck, Bertrand; E. B. Wilson, Grand Island, and Elwood Robertson, Curtis.

East-Central District — J. W. Hudson, Aurora; John Spady, Hastings; Bert Ammerman, Scotia; D. E. McGregor, Gibbon; Taylor Withrow, Grand Island, and Pat J. Carey, Petersburg.

East District — H. D. Thompson, Wisner; Jack Dwyer, Hartington; Clyd Burge, Beatrice, and Ray Bennett, Omaha.

West Coast Tel. Co. Installs 100,000th Phone

THE WEST COAST Telephone Co. made its 100,000th telephone installation on October 7 in Mt. Vernon, Wash. This telephone was installed in the residence of Mr. and Mrs. Don Mahaffey at 519 Washington Street. Mahaffey is a faculty member of the Mt. Vernon High School, as well as coach for the tennis and swimming teams.

After the connection was made by installer Keith Breathour, the Mahaffeys made their first calls to Mr. Mahaffey's parents in Yakima, Washington, and to Mrs. Backstrom, an aunt in Los Angeles. Little Marsha Anne Mahaffey, aged 1, received a toy telephone appropriately bearing the number 100,000.

Then they were conducted on a

(Please turn to page 86)

Servicing the
INDEPENDENT
Telephone Industry

A
Complete Line of
Telephone Supplies

•

Lindsay Telephone Supply Co.

Telephone ENdicott 1-0110 7016 Euclid Avenue
CLEVELAND, OHIO

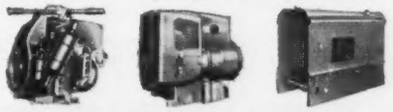
PERSONALIZED SERVICE

ONAN
Emergency
Electric Plants
for
Civil Defense

No matter what happens to central station power during a bombing attack, electricity for essential defense needs is always available with Onan Electric Plants. Onan units, mounted on truck or trailer, or carried in the trunk of a car, can be rushed to any point where power and light are needed. Sturdy and dependable, Onan Electric Plants are an important link in a city's defense against disasters of any kind.

Write for folder

Power & Light for Every Need



Portable, Mobile, or Stationary
400 to 35,000 watts. A.C. or D.C. models.

Onan PRODUCTS

D. W. ONAN & SONS INC.
7567 UNIVERSITY AVE., MINNEAPOLIS, MINN

SUPPLIES OF Proven Dependability

• Shipment of guaranteed line supplies made from distribution center nearest you . . . Kellogg's warehouses located in Chicago, Kansas City, Dallas, San Francisco and St. Paul.

The following nationally-known manufacturers of supplies for the independent telephone field are participating in the the 1952 Kellogg Co-operative Campaign.

American Creosote Works, Inc.

American Structural Products Co.

Ansonia Electrical Company

Bishop Manufacturing Co.

Boston Woven Hose and Rubber Company

Churchill Cabinet Company

Continental Cross-Arm Co.

Cook Electric Company

Copperweld Steel Company

The Electric Storage Battery Co.

General Insulated Wire Works, Inc.

Gould-National Battery, Inc.

W. A. Hammond Drierite Company

Indiana Steel & Wire Company

Kester Solder Company

Lorain Products Corporation

T. J. Moss Tie Company

National Carbon Company
A Division of Union Carbide and Carbon Corporation

National Telephone Supply Co.

Newman Manufacturing Company

Paragon Electric Company

Raytheon Manufacturing Co.

Ray-O-Vac Company

Reliable Electric Company

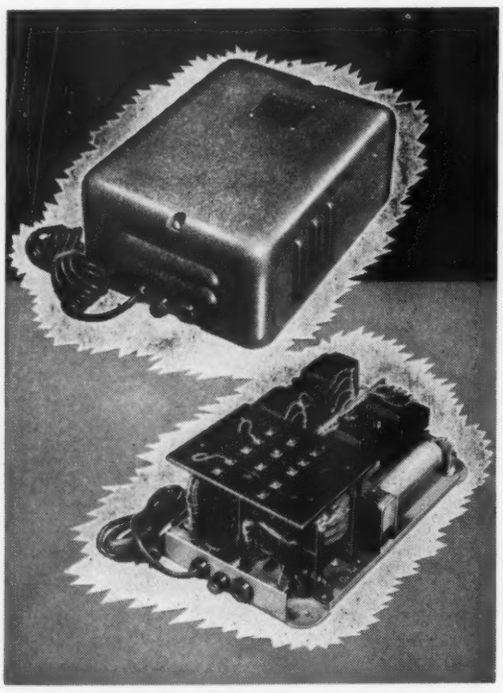
M. M. Rhodes & Sons Company

Schauer Manufacturing Corp.

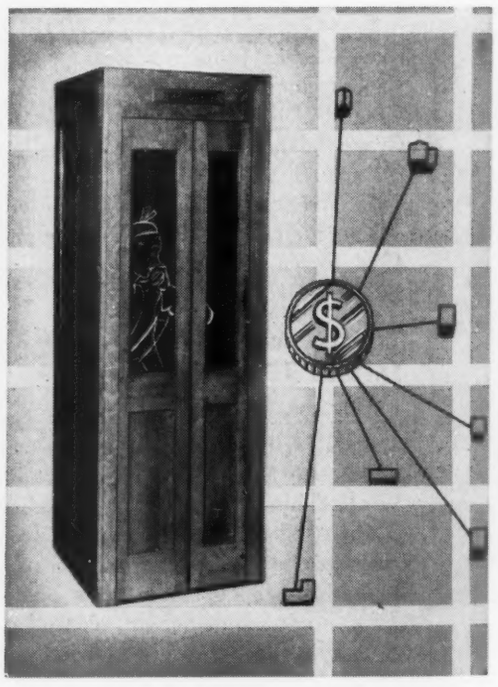
Taca Cable Stripper Manufacturing Co.

Vulcan Electric Company

Weller Electric Corp.



12 Models—5 Cabinet Sizes comprise this new line of packaged power Sub-Cycle "RT-Units" for P.B.X. and small switchboards. Both ringing and talking power are combined in one cabinet. Made by LORAIN PRODUCTS CORP. Write for Bul. 159.

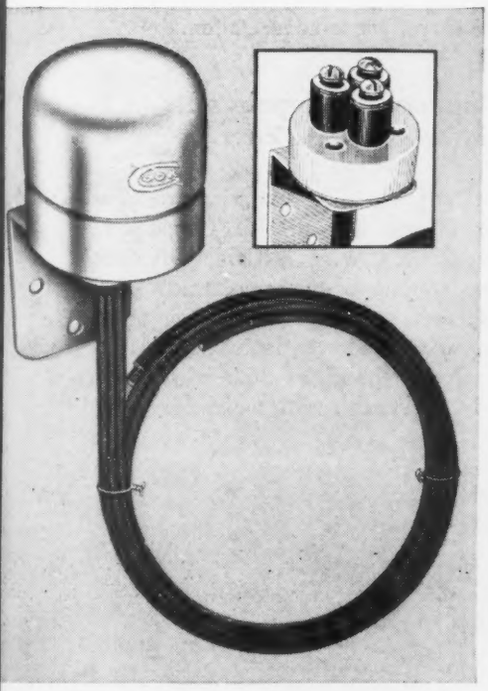


Make Every Pay Station a Paying Location! Churchill booths attract extra patronage everywhere. They give the public privacy, roominess, comfort. Above is CHURCHILL CABINET CO.'s No. 100 booth, with door-controlled light switch and ventilator.

Modern Cable Saves Money 3 Ways—Ansonia Ankoseal, the all-plastic, light-weight cable costs less to buy in the popular sizes, less to install, less to maintain. Available for aerial, duct and direct burial use. THE ANSONIA ELECTRICAL CO.

Save Three Ways . . . on materials, man-hours, and maintenance with INDIANA STEEL & WIRE CO.'s Crapo HTL-85 and HTL-135 Line Wire. Galvanized by the famous Crapo Galvanizing Process, protected with heavy, ductile, tightly-adherent coating of zinc.

Sealed Against Trouble! Communication equipment manufacturers demand Kester Plastic Rosin-core Solder, because it makes a perfect seal. Prevents high-resistance joints and intermittent open-and-closed circuits. KESTER SOLDER COMPANY.



The New Hi-Cap Power Cross Protector is designed for use where communication and power circuits of higher voltage occupy same wood pole. This protector is capable of carrying power currents until power breakers open. Made by COOK ELECTRIC CO.

"Hostilities will cease on the whole front on Nov. 11 at 11 A.M." Thus went the telegram ending World War I. In peace and war, research has enabled Hemingway Insulators, made by AMERICAN STRUCTURAL PRODUCTS CO., to provide increasing efficiency.

Poles That Last!—the fine creosoted Southern Pine Poles selected by T. J. MOSS TIE COMPANY are exceptionally sturdy and durable—will give longer years of service. Poles are uniform in size and pressure-treated to conform to rigid standards of quality.

Send Your Next Order for Supplies to

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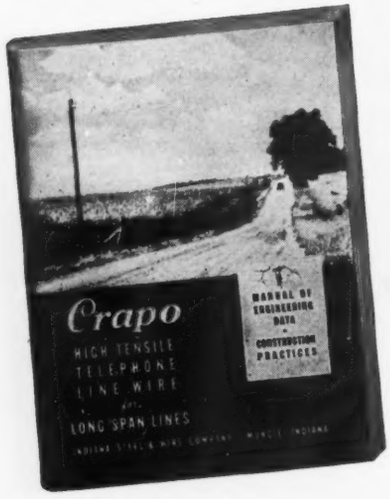
720 S. W. Washington St., PORTLAND 5, OREGON

How to Build Better Rural Lines at Lower Cost per Mile



Write for Your Copy of This Free Book!

You can save material and man-hours, and build better rural lines, when you use *Crapo* High-Tensile Telephone Line Wire.

Long - span, lower - cost rural construction is described in the illustrated Manual shown above. Designed to assist telephone men in furthering their plans to extend and improve rural service, this book includes stringing sag and tension data, helpful information on construction practices, metalicizing, transposition, pole guying, and related subjects.

This FREE book is yours for the asking. Write for Manual No. 203 today!

Crapo HIGH-TENSILE LOW-RESISTANCE LINE WIRE

Distributed by Leading Jobbers

Crapo HTL-85 Crapo HTL-135

INDIANA STEEL & WIRE COMPANY
Muncie, Indiana

Edwin J. Rudisuhle (above) has joined the sales engineering department of the Lenkurt Electric Co., San Carlos, Calif., manufacturers of multi-channel telephone and radio equipment. He will be concerned primarily with the application of carrier channelizing equipment to VHF and microwave radio links.

Before joining Lenkurt, Mr. Rudisuhle was with the Civil Aeronautics Administration as chief, Electronics Establishment Branch, Ninth Region. In this capacity he was in charge of radio engineering in the Pacific area and supervised the engineering and installation of a number of multi-channel radio links.

---

tour of the telephone plant, where the complex operation and equipment associated with the completion of a telephone call was explained to them.

Later Mr. and Mrs. Mahaffey and Marsha Anne were the guests of the telephone company at a dinner party in the Presidential Hotel, where they were welcomed by General Agent Harry Chapman, District Commercial Supervisor Lyle Cross, Manager Robert Ringman, Chief Operator Claire Maris and Wire Chief Leo Maskell.

"This installation is a measure of the company's astonishing growth in the past 24 years," commented Ray Dalton, vice president and general manager of the company.

The West Coast Telephone Co. came into being April 30, 1928, as a merger of the Puget Sound Telephone Co. and several smaller companies in Oregon and California. At that time the company's telephones in service totaled 34,895. The rise to 100,000 telephones in service, a growth of over 186 per cent, has been achieved despite several years of acute depression in the 'thirties and the difficulties of the World War II period, when telephone installations were taboo for any purpose not connected with military necessities. The number of employees in the company's service has risen from about 500 to 1580 in the 24-year period.

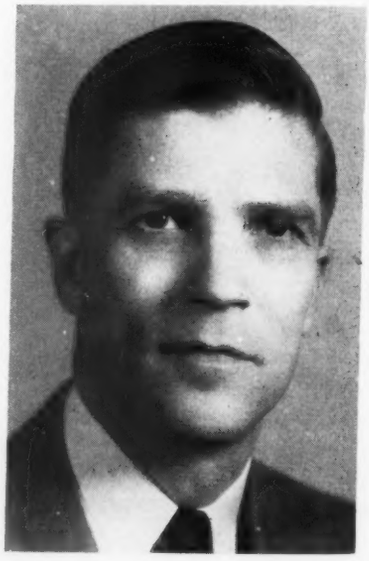
"The West Coast Telephone Company and its subsidiaries now operate 76 exchanges; 29 are in Washington, 43 in Oregon and 4 in Northern California. Our most spectacular growth has come since the end of hostilities in 1945. On VJ Day we had 44,550 telephones in service. The 100,000th installation, therefore, represents a growth of 124 per cent in slightly more than seven years.

"This extraordinary growth in telephone stations has necessarily been achieved only by a great increase in our capital investment.

We anticipate a continuation of this development for a long time to come and we are bending every effort to give the utmost in telephone service to the rapidly growing communities we serve," concluded Dalton.

Copperweld Appoints Cavanagh Sales Engr.

PAUL VAN WAGNER, vice president in charge of sales of Copperweld Steel Co.'s Wire & Cable Division, has announced the appointment of J. Gordon Cavanagh as sales engineer covering the lower peninsula of Michigan and the entire State of Indiana. Mr. Cavanagh will make his head-



J. Gordon Cavanagh, newly-appointed sales engineer, will represent the Copperweld Steel Co. in the lower peninsula of Michigan and Indiana.

quarters in Detroit as did Donald T. Jones, his predecessor. Mr. Jones is temporarily on a leave of absence from the Copperweld Steel Co. and is serving with the United States Navy.

Mr. Cavanagh's many years of electrical engineering experience should be extremely helpful to all those he will contact in his territory. After graduating from Washington University, St. Louis, where he received his B.S. in Electrical Engineering, Mr. Cavanagh spent the next three years as a field supervisor with Illinois Power Co. and Missouri Power & Light Co.

In 1941, he joined the engineering department of Iowa Power & Light Co. at Des Moines. The following year he was made substation engineer, later advancing to engineer of relays and electronics, handling relay engineering and carrier current work. Three years ago, he was promoted to engineer of overhead lines, in charge of the design, construction, operating and maintenance of the overhead system from 120/240 volt secondaries to 161 KV transmission.

New Plant Addition For Leich Electric

THE LEICH Electric Co. has announced that construction has started on an extensive addition to its factory at Genoa, Ill. This addition, occasioned by expanding business, will enable Leich to double the production of its manufactured products.

It will be a two-story brick and concrete building. Each floor will be 280 feet by 95 feet, providing a total of 53,200 square feet of additional floor space. When completed, the first floor will house telephone supplies and construction materials. It will also contain the truck dock and shipping and receiving rooms. The truck dock will accommodate four trucks at one time.

The new second floor will be used for the assembly, wiring and testing of dial switchboards and related assemblies. It will also provide additional needed space for the assembly of converters and manual switchboards and coil winding.

The space vacated by the departments being moved to the new building will allow for a considerable expansion of the telephone assembly, wiring and testing departments.

A 200,000 gallon underground water storage tank will be installed under the new building. A 1000 gallon per minute water fire pump will connect this additional water supply to the existing 35,000 gallon overhead storage tank.

The new building was designed by Pace Associates of Chicago. Construction is by the Turner Construction Co. (*Photos on page 89*)

The Leich Electric Co. has its general sales offices in Chicago, and is a subsidiary of the General Tel. Corp.

Bishop Names Gillman Technical Director

BISHOP Manufacturing Corp., Cedar Grove, N. J., manufacturers of electrical insulating tapes and compounds, has announced the appointment of Harmon H. Gillman as technical director. Mr. Gillman will continue the development of existing products plus a new line of rubber and plastic products.

Mr. Gillman has been associated

(Please turn to page 89)

TASK FORCE
not even a blizzard can stop!

Photograph shows a Neale crew leaving a North Dakota pole yard during a heavy snowstorm.

Every Neale crew is organized as a task force . . . for night and day service on any type of outside plant job. Highly skilled men, who have years of on-the-job experience in serving independent telephone companies all over the country, work with the most modern equipment and highest quality materials.

You can entrust your job to Neale with full confidence whether it is new construction, regular maintenance or emergency repair.

All Neale work is done to AT&T specifications or the equivalent unless otherwise requested by you.

Neale offers not only technical advice on engineering and construction, but assistance in obtaining materials.

For an outside plant that operates more efficiently and lasts longer, call Neale today. We will give you time and cost estimates on your project without obligation on your part.

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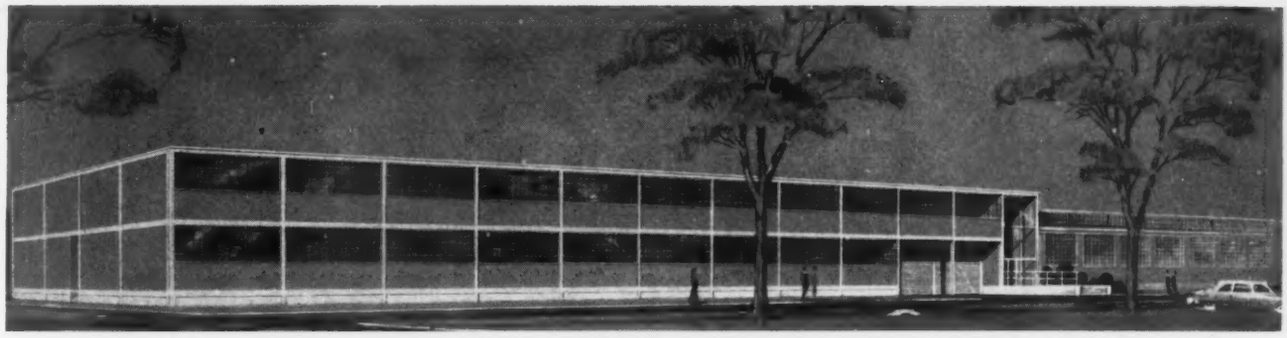


Architects drawing of new plant addition for Leich Electric Co., Genoa, Ill., manufacturer of telephone equipment.

with the rubber industry for the past 14 years. His last position was manager of the materials division of the Gates Rubber Co., where he served in various executive capacities for the past 12 years.

Mr. Gillman served as chairman of the Membership Committee of the Colorado Section, American Chemical Society, is a member of the American Institute of Chemical Engineers, Rocky Mountain Section, and has contributed articles to numerous publications in the field of rubber. He received his B.S. in Chemical Engineering from Massachusetts Institute of Technology.

Sydney Scruby Completes 50 Years of Service

SYDNEY V. SCRUBY, engineer in charge of telephone development for Federal Telephone & Radio Corp., Clifton, N. J., recently completed a half century of service in companies of the International Telephone & Telegraph Corp.

A member of Federal's telephone engineering staff since 1940, Mr. Scruby began his career in 1902 with the Western Electric Co., Ltd., predecessor of the IT&T-affiliated Standard Telephones & Cables, Ltd., of London. Since then, his work has taken him to many countries, including France, Belgium, Germany, Italy, Spain, Norway, Denmark, Holland, Switzerland, Turkey, Rumania, Hungary, Puerto Rico and Cuba. In 1940, he was assigned to the United States with other IT&T specialists for the specific purpose of introducing IT&T Rotary telephone equipment to this country.

As engineer in charge of projects and equipment, Mr. Scruby played a major role in the development, in 1911, of the first Rotary system to be produced by Bell Telephone Manufacturing Co., IT&T's associate in Antwerp, Belgium. This was followed in 1914 by a 26-year assignment in France, which, among other things, witnessed the conversion of the 500,000-line Paris telephone system from manual to IT&T Rotary automatic operation.

Sydney Scruby, engineer in charge of telephone development for Federal Telephone & Radio Corp., Clifton, N. J., recently completed 50 years of service in the IT&T System.

A frequent contributor to technical publications, Mr. Scruby has written a number of papers on the subject of Rotary, but, oddly, most of the patents he has obtained over the past 50 years cover the power plant field.

Mr. Scruby believes there is an unlimited future for young men planning to enter the communications field. "An engineer who hopes to succeed must become electronically minded," he advises. "Above all, he must be a specialist and should devote as much of his time as possible to the study of new trends and developments."

Mr. Scruby was educated at Chelmsford and London and attended night classes at the Goldsmith Institute. A bachelor, living at the Hotel Shelton, New York, Mr. Scruby says he has no intention of retiring at this time. When he does, he plans to devote all of his time to color photography.

Major General Leavey Elected IT&T Vice Pres.

MAJOR GENERAL Edmond H. Leavey, U.S.A. (Retired) has been elected a vice president of International Telephone & Telegraph Corp.

A distinguished army officer, General Leavey has had extensive experience in both the operational and administrative fields of engineering. Prior to his retirement in 1952, he was Chief of the Logistics Division of Supreme Headquarters of the Allied Powers in Europe (SHAPE). During World War II, he occupied key posts in both the European and Pacific theaters.

A native of Longview, Tex., General Leavey attended Texas Agricul-

(Please turn to page 94)

Major General Edmond H. Leavey, U.S.A. (Retired), vice president of International Tel. & Tel Corp.

THE BUYERS' GUIDE and NEW PRODUCTS' SHOWCASE

For complete information on the products and services described in this department send in the coupon which appears on the opposite page. If you do not see a listing of the products and services that you are interested in, write BUYER'S GUIDE, 7720 N. Sheridan Road, Chicago 26, Ill. The information will be furnished quickly and without charge to telephone industry members.

ADVERTISING, Directories — General Telephone Directory Co., 604 Pine Ave., Long Beach, Calif., and 185 N. Wabash, Chicago, Ill.—**[ADV. 1]**

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa. —**[ADV. 2]**

BELTS — CLIMBERS — PLIERS — SAFETY STRAPS — CONSTRUCTION TOOLS. Klein & Sons, Mathias. 3200 Belmont Ave., Chicago 18, Ill. — **[ADV. 3]**

BOOTHS—Acoustic Telephone — Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.—**[ADV. 4]**

BRUSH & WEED KILLERS—Thompson manufactures many types of brush and weed killers. Write for helpful information on specific problems. Thompson Chemicals Corp., St. Louis 3, Mo.—**[ADV. 5]**

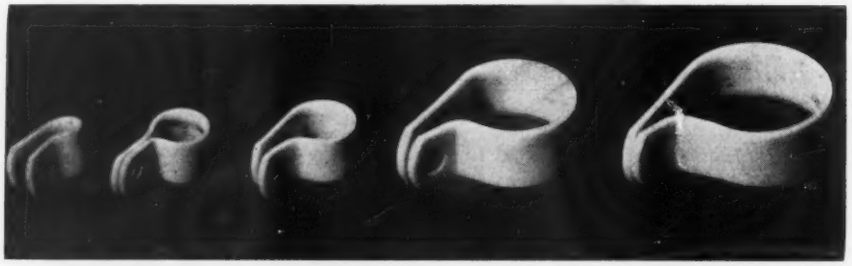
CABLE, All Plastic, Aerial, Duct, Direct Burial, PBX, Switchboard.—The Ansonia Electrical Co., Ansonia, Conn. —**[ADV. 6]**

CORDS, Switchboard, Instrument and Operators — Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.—**[ADV. 7]**

CORDS, Switchboard & Telephone — Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill. — **[ADV. 8]**

ELECTRIC HOT WATER HEATERS. Thermostatically controlled for any hot water heater, Vulcan Electric Co., Danvers 17, Mass.—**[ADV. 9]**

FURNACES—For quickly and economically melting lead and paraffin—Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif.—**[ADV. 10]**

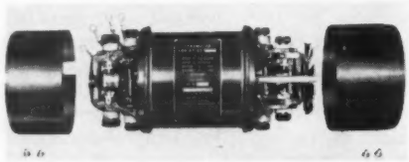


NEW CABLE CLAMPS: A non-inflammable plastic cable clamp is announced by Holub Industries, Inc., Sycamore, Ill. It is made of Saran, well known as a tough, strong thermoplastic material, also offering excellent electrical and thermal properties.

Other important characteristics are its inertness to fungicidal attack, ability to withstand changes in atmospheric conditions and resistance to corrosion or sweating. Saran is not affected by prolonged immersion in water and remains stable when exposed to mild acids, chemicals, oil, etc. It is non-toxic and has excellent abrasion resistance. Reduction of weight is claimed as another feature.

Because Saran is a pliable material, this clamp can be opened to any dimension for easy sliding over wires, cable, pipe or tubing. Edges are rounded to prevent damage to insulation, etc. Being resilient, the plastic clamp eliminates the need for lock washers in many instances.

Saran clamps are made in seventeen stock sizes, ranging from $\frac{1}{8}$" to $1\frac{1}{4}$". The producer also announces new sizes of their ethyl cellulose clamp. The present size range is $\frac{1}{8}$" to 3", a total of 22 stock sizes, including a shape made especially for 300 ohm flat twin lead-in wire. **For Complete Information check New Product 460.**

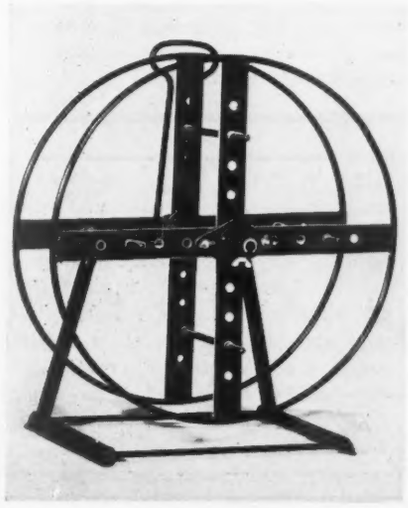


NEW DYNAMOTOR: A compact new dynamotor, Model No. ES-129, which performs the same functions as three conventional dynamotors, has been announced by Electro Engineering Products Co., 609 W. Lake St., Chicago, Ill.

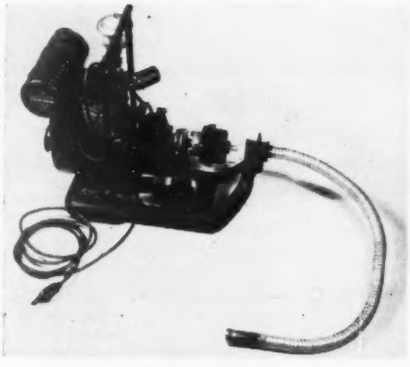
The company asserts that the 4-commutator dynamotor will operate with equally efficient performance from 6, 12, or 24 volts power supply. Output is 500 volts at .100 amperes. Length of the unit is $10\frac{1}{4}$ inches, and diameter is $4\frac{1}{2}$ inches. Total weight is $11\frac{1}{2}$ pounds.

Constructed to U. S. Army Signal Corps. specifications, the Model ES-129 dynamotor is intended for continuous service, with a rated temperature rise of 50°C. The outstanding feature of this unit is its specially de-

signed, dynamically balanced armature containing four windings. **For Complete Information check New Product 461.**



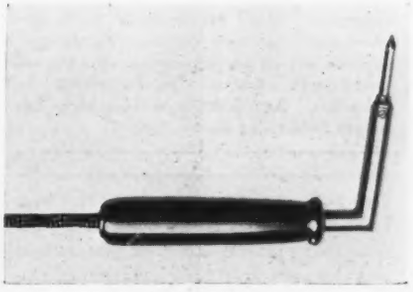
HEAVY DUTY REEL: The new HyKon Heavy Duty Reel is designed for handling drop wire and large bulky coils of cable, etc. It is adjustable for all coil sizes. New eight page catalog bulletin describes the heavy duty reel and other items manufactured by the HyKon Manufacturing Co. **For your copy check New Product 462.**



ELECTRIC EEL: Sewer, wasteline and field tile cleaning, where electric power is not available, is an easy chore for this new gasoline engine powered *Electric Eel.* According to the Ohio Tool & Engineering Co., the Eel cleans out roots, stones, and debris in one speedy, thorough operation, saves time and money, and eliminates all digging.

Weighing only 66 pounds for easy portability, the Eel is designed to clean pipe 1¼" in diameter and larger and has sufficient power to handle 300 ft. of cable. The 1½ H.P. gasoline engine is back geared 6 to 1, has an instantaneous kick-out, and an adjustable friction clutch between the engine and the cables.

The new model also features a flexible connection for joining cables which eliminates breakage at the end of the fittings. The cable itself is available in either regular or heavy duty types. The heavy duty type is actually a double cable, consisting of a rotating inner and a stationary outer cable. It eliminates the possibility of injury to the operator in case of breakage, steps up efficiency, and makes it impossible to lose broken cable in the line. **For Complete Information, check New Product 463.**



New Soldering Iron: — A new angle-type electric soldering iron for light-duty soldering has been announced by the manufacturer of "American Beauty" Soldering Irons.

Weighing only 10 ounces, the new iron's angle shape permits easy application to work that is difficult to reach with straight irons. It has a ¼ inch plug-type tip, an input of 60 watts, and is available in standard voltages and for 32 volts. A separate heat-insulating stand is supplied with each iron. For further information check **New Product 464.**

INSULATORS, Porcelain — Porcelain Products Inc., Box 300, Findlay, Ohio.—**[ADV. 11]**

LIGHTWEIGHT PULLERS—Coffing Hoist Company, 800 Walters St., Danville 5, Ill.—**[ADV. 12]**

PIPE PUSHERS — Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.—**[ADV. 13]**

POLE HOLE DIGGERS — For derrick mounted trucks. Tele-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.—**[ADV. 14]**

POLES, Southern Yellow Pine — Colfax Lumber & Creosoting Co., Inc., P.O. Box 23, Pineville, La.—**[ADV. 15]**

POLES, Southern Yellow Pine — Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.—**[ADV. 16]**

POLES, Southern Yellow Pine — Texas Creosoting Co., Orange, Texas. — **[ADV. 17]**

PROTECTIVE EQUIPMENT — Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.—**[ADV. 18]**

REBUILT TELEPHONE & SWITCHBOARDS — Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 2, Ill.—**[ADV. 19]**

TRUCK BODIES — Highway Trailer Co., Edgerton, Wisc.—**[ADV. 20]**

WIRE, Insulated—DATED DROP WIRE —Neoprene or Weatherproof—Alphaduct Wire & Cable Co., Milltown, N. J.—**[ADV. 21]**

WIRE, Insulated Drop and Bronze or Copperweld — Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.—**[ADV. 22]**

WIRE, Telephone, for all inside and outside uses—Whitney Blake Co. New Haven, Conn.—**[ADV. 23]**

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CENTRAL OFFICE PERSONNEL experienced with Strowger and manual equipment. Employment affords opportunity for early advancement. Replies are strictly confidential and should include details of experience, objectives, etc. Write the Union Telephone Company, Owosso, Michigan.

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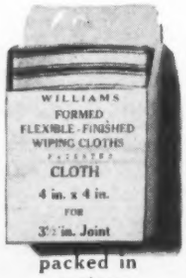

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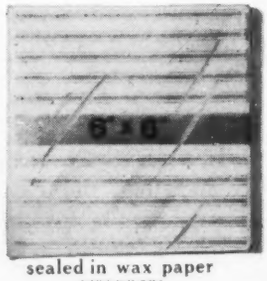

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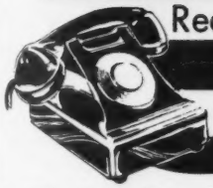

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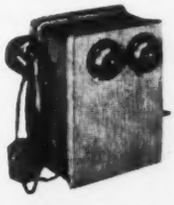

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Phone CLIFTON SPRINGS 189

(*Continued from page* 89)

tural and Mechanical College for two years. In 1913, he entered the U. S. Military Academy and was commissioned a second lieutenant upon graduation in 1917. He received his civil engineering degree from Rensselaer Polytechnic Institute in 1922 and for the next four years was assistant professor of Military Science and Tactics at Massachusetts Institue of Technology.

The recipient of many military honors, General Leavey also holds honorary degrees of Doctor of Laws and Doctor of Engineering from Texas A. & M. and Rensselaer Polytechnic Institute, respectively.

General Leavey, a registered professional engineer in civil and industrial engineering, state of Texas, is a member of the American Society of Civil Engineers, the Army and Navy Club, Washington, D. C., the Pacific Club, Honolulu, and the Sigma Xi and Delta Tau Delta fraternities.

Motorola Announces New 'Micro-Talkie'

THE COMMUNICATIONS and Electronics Division of Motorola Inc., has announced the initial mass production of a hand-sized Micro-Talkie transmitter designed to operate in the 152-174 megacycle frequency band. The new lightweight miniature unit is especially useful for patrolmen on foot, watchmen, firemen at the scene of a fire, or for one-the-spot news reporting, as well as industrial uses such as railroad car checking, inventory control and materials handling, the company said. The transmitter weighs less than two pounds, and has a power output of 20 to 40 milliwatts and a tested optimum range up to five miles. Overall case dimensions, including batteries and microphone, are 7-3/8″ by 2-1/2″ by 1-3/4″.

Lucier Named Vice Pres. Of Stromberg-Carlson Credit

PHILIP J. LUCIER, manager of the Stromberg-Carlson Credit Corp. since it was started, has been elected a vice president of the organization, it was announced by President Gordon G. Hoit. At the same time, George Gordon, legal counsel of the company since its inception, was named assistant secretary and counsel.

Lenkurt To Supply Data To Italian Firm

THE LENKURT Electric Co., San Carlos, Calif., has completed initial arrangements to supply manufacturing information and carrier parts to Autelco Mediterranea of Milan, a subsidiary of the Automatic Electric Co., it was announced last week. Dr. Giuseppe Spataro, Minister of Posts and Telecommunications of Italy, visited the Lenkurt plant during his tour of the US.

Telephone carrier equipment designed by Lenkurt provides many simultaneous channels over a single wire line or radio system, the company pointed out.

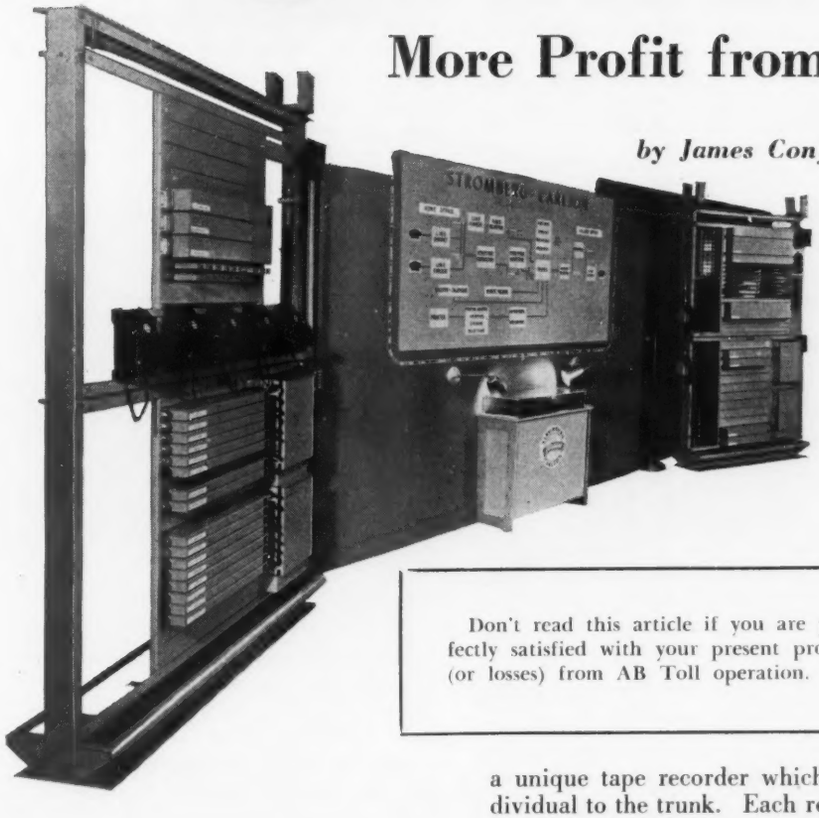
High Italian government officials and communications experts are pictured above during their recent visit to the Lenkurt Electric Co. in San Carlos, Calif. The group visited Lenkurt to study advances in technical science and labor relations. Pictured are (Left to right): Professor Scipione Treves, Professor Giulio Battistini, Mr. L. G. Erickson, President of Lenkurt Electric Co., Dr. Giuseppe Spataro, Mr. D. C. Galassi, Air Vice Marshal A. F. Lang, Professor G. Francini, and Dr. Monti Guarnieri.

STROMBERG | CARLSON

transmitter

Published by the makers of famous XY Equipment

VOL. 1, No. 9, DECEMBER, 1952



More Profit from Short Haul Toll

by James Confeld, Telephone Systems Engineering

Don't read this article if you are perfectly satisfied with your present profits (or losses) from AB Toll operation.

Stromberg-Carlson's Magnetic Toll Ticketing System (Type A) had its first public demonstration at the U.S.I.T.A. Convention in Chicago in October. In this simple, straight forward, economical system, the subscriber, after reaching a trunk to a toll point, dials his own number to identify himself. A train of switches is set up back to the calling line for verifying purposes while the originating party is dialing his own number. If the verifying is completed, subsequent digits are forwarded over the trunk to the distant office to set up the connection to the called party.

All the information regarding the calling number, called number, elapsed time of conversation, time of day, and date is recorded magnetically on a unique tape recorder which is individual to the trunk. Each recorder uses an endless loop of ordinary magnetic recording tape and has a storage capacity of about 100 average calls.

In actual practice this capacity will seldom if ever be reached, since on an *unattended* and routine basis (perhaps once a day) these tapes are played back and tickets are printed from the information thus stored. If, due to unusually heavy traffic conditions, a recorder does become full, an emergency start circuit calls in the playback equipment and the full recorder is played back immediately. As the tapes are played back and tickets are printed from the information magnetically stored on them, the recordings are erased; thus the same tapes can be used *over* and *over* again.

Many readers did not have the opportunity to watch the operation of this equipment at Chicago, and many of those who were there asked questions which will be of interest to others. This seems like a good time to repeat some of the questions which were asked by operating company representatives and the answers to those questions.

A customer who has recently converted one of his offices to XY, but has other dial offices of different manufacture, asked, "Can this equipment be installed in offices other than XY and will it work in exchange areas having mixed types of equipment?"

Stromberg-Carlson XY Toll Ticketing will work with *any system* in which connections are set up in direct response to the subscriber's dial. It will also ticket calls one way into large metropolitan areas, even those employing sender type systems.

An operating company executive, stating that he had several outlaying offices which have toll charges to other points, asked, "Can I print all the tickets from these calls at a central ticketing center such as my business office?"

One of the major advantages of the XY Toll Ticketing System is its completely unattended and remote playback feature. By means of suitable control circuits, information which has been stored in the individual trunk recorders in several remote offices can be played back on a routine and unattended basis into one central ticketing office.

STROMBERG-CARLSON transmitter

Printing and Cutting Unit operates completely unattended, and is controlled entirely by the traffic.

Here the common equipment is located, and tickets for calls originating in all the remote offices are available for listing. It is not necessary for an employee to make the rounds of the remote offices to collect the recorded information, and only one set of common playback and printing equipment is required. The ticketing capacity of one set of common equipment is 10,000 tickets per day.

A plant engineer observed, "This equipment uses electronic tubes. Does this mean that we would have to be continually testing and replacing tubes to keep running?"

The expected life of the cold cathode gas triode used in portions of the system is approximately 40 million operations. Most of the cold cathode tubes will last the life of the exchange, with a few in specific circuits having to be replaced on a routine basis every five years. There are only seven hot cathode tubes (heaters used) in an average size installation. These have an expected operating life of about 10,000 hours and are turned on only once a day for the short time necessary to play back the recorded information and print the tickets. It can be seen, therefore, that tube life and maintenance problems are negligible in this system.

Suitable alarms can be placed in all portions of the system to report immediately any extraordinary operation or equipment failure.

Another question frequently asked was, "What happens in the case of commercial power failure?"

The only source of power necessary to make toll calls and to record the information concerning these calls is the regular exchange battery. Commercial power affects only the playback process. The storage capacity of the trunk recorders is so large and the playback cycle can be so adjusted that sufficient reserve recording capacity is available in case the playback process is delayed due to power failure. If the commercial power fails while playback or printing is in progress the entire process will stop and will begin again as soon as power is restored.

A Commercial Department man inquired, "Do these automatically printed tickets look enough like our manually written tickets so that they can be mixed in with them and sorted together?"

An unqualified YES. Another major advantage of the XY Toll Ticketing System is its extreme flexibility. The printed information can appear on the ticket in any order desired and thus can be made to conform to any operating company's practices. Originating town and Destination town abbreviations are printed in letters and the office code of a seven digit number can be printed as letters.

For those exchange areas where the volume of traffic warrants automatic billing procedures throughout, the XY Toll Ticketing common equipment can feed its information into card punching machines, producing cards which can then be run through the remainder of the billing process on standard business accounting machines.

Another plant man wanted to know, "How much floor space will this equipment use?"

One standard frame 5'1" long, 1'4" deep, and 9'0" high will mount all the common equipment for any size installation, all the verifying selector equipment, *PLUS* 22 trunks and their associated recorders. Another 5'1" x 1'4" x 9'0" frame will mount an additional 44 trunks. The ticket printer may, if desired, be located at a distance from the rest of the common equipment and occupies only approximately 9 square feet of floor space.

David Balis and Elizabeth Bennett

The Installation Department Supervisory Group

When you think of the Installation Department you think of the men in the field, installing new exchanges, helping with additions or advising on preventative maintenance and trouble shooting. In no other department could a man learn more about what makes the telephone business tick. Some of our best salesmen and sales-engineers have come to their present position from the installation force—a group of trained experts now numbering almost 100.

Back of these field men is a small, hard-working group who make the assignments, expedite materials and find answers for the unique situations which arise in different localities.

Douglas Meeds *Herman Selle*

Dave Balis, Assistant Chief Installer, under the general direction of Ralph ("Cy") Barger, molds the outside groups into teams with their own group leaders. Scheduling is a major part of his work.

Douglas Meeds, assistant to Dave Balis, came with Stromberg-Carlson in 1942 after installation experience with Western Electric Company. Doug spent some time in the relay department and in all types of inspection; in his present capacity he handles the material requirements for all the groups in the field.

Herman Selle is Service Engineer. His wide experience includes work with Western Electric, International Telephone and Telegraph, and the Gustav Hirsch Organization. One large installation was in Trinidad, B. W. I.

Elizabeth Bennett started in 1943 in the Radio Service and Sound Divisions before joining the Installation Department in 1946 as secretary to the late Mr. Ernest Browing. She is now departmental secretary and clerk.

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A Salute to a Leader...

The Dixon Home Telephone Company

Mr. Harry Bates, General Manager of the Dixon Home Telephone Company, leaned back in his chair. "Please excuse us if we seem a bit enthusiastic — here at Dixon we live in a world of our own which, on the whole, is very pleasant." These few

Mr. Harry H. Bates, Manager

words sum up the general impression a visitor receives: each employee brings enthusiasm to his daily task, and all look into the future with confidence.

Dixon, Illinois, is credited with having more telephones per capita than any other city in the United States. The telephone company's healthy growth has kept pace with the city's development as a strictly independent, home-owned company. More than 70% of its stockholders are local residents. Over the years a mutual feeling of trust and respect has been established.

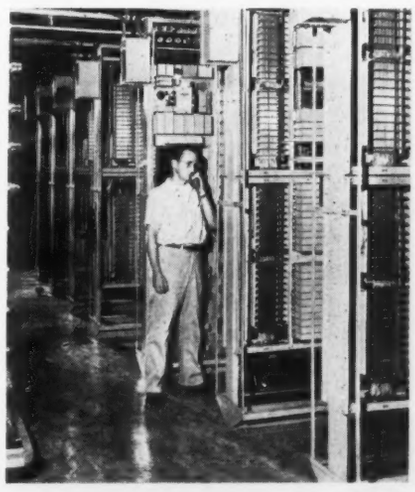
Competition with a local "Bell" exchange until 1912 may have stimulated the Dixon Home Telephone Company to be first with improvements as they became available. Just four years later — in 1916 — a disastrous fire swept the exchange building, destroying all equipment and records. The 2500 subscribers of that day never forgot the way the company met this catastrophe; full service from temporary quarters was restored in 13 days. The modern brick building which rose from the ashes is a tribute to these early leaders.

In 1923 an underground cable project was started and during the succeeding six years the lines for the entire city were buried. When Mr. Bates was appointed Manager in 1939, the company began the program which now places it high among the leaders in the industry. A graduate of Cornell University in engineering, and a member of the American Society of Mechanical Engineers, Mr. Bates had several years of engineering and executive experience with Power Plant installations.

This may have prompted him to install the first fluorescent lighting system in a telephone exchange. For employee's comfort all working offices are equipped with Thermal Lamps and Zone Air Conditioning.

In 1950 the main city exchange, consisting of 2600 lines, was cut over to Stromberg-Carlson XY Dial. A modern addition, of a size to accommodate future expansion, was built

James Radke, equipment engineer, and one corner of the equipment room.



to house this equipment. Four unattended satellite exchanges — Grand Detour, Nelson, Nachusa and Harmon — were tied in, and the entire company's operation was then dial operated and completely interconnected. Each Community Dial Office is housed in a metal building insulated against heat, with controlled de-humidifiers and seals to keep out dampness and dust.

A nine-position Stromberg-Carlson No. 3 Toll Board gives all phones in the system direct access to the National Operator Toll Dialing System.

Subscribers have given full support to the conversation timing features which have been incorporated in the system to provide equitable sharing of lines. All party lines, both rural and in the towns, have four frequency harmonic ringing with six-minute time disconnect. Private lines, and toll lines of course, have no time limit. The better service afforded in this manner may have contributed to the growth in subscribers — presently numbering about 8700.

The Dixon Home Telephone Company has achieved several "firsts" over the years:

STROMBERG-CARLSON *transmitter*

The toll room is large, comfortable and efficient.

Directories are issued annually, with an up-to-the-minute supplement put out to all subscribers every 60 days.

It was the first company in Illinois, and perhaps in a much wider area, to give subscribers their original toll tickets with their monthly statements.

It was the first Class A Company to put all party-line subscribers and extended area lines on a time disconnect basis.

It was the first company to install over 2500 lines of XY Dial equipment in a single exchange.

It offers secretarial service to every subscriber so that, if he chooses, his telephone will be answered when he is away.

It has pioneered in providing comfortable working areas through the use of modern lighting and air-conditioning equipment.

These and other firsts are noteworthy. But more important is the high quality day-to-day service, coupled with foresight in advance planning. These give the Dixon Home Telephone Company its reputation . . . of which it is justly proud.

L. to r. Mrs. Esterbelle McLennon, chief operator, Mrs. Lovena Dempsey, senior supervisor.

Wire chief Delroy Long uses turrets for routine checking.

MEET David Balis

Among the most treasured possessions of Mr. and Mrs. David Balis are their recently acquired American citizenship papers, which show that after years of living in the Orient the Balis' have found a home.

Let's look back, "somewhere east of the Suez . . . by the old Mulmein Pagoda . . . looking eastward o'er the sea," to Singapore, Strait Settlements, where "Dave" Balis was born. Dave doesn't remember too much about Singapore as his family moved to China when he was four years old.

In China, Dave attended the Shanghai Public School for Boys, from which he graduated in 1929. He began his telephone career in 1931 when he went to work for the China Electric Company where he participated in the installation of seven dial telephone exchanges for the International Telephone and Telegraph Company. This experience proved useful when in 1939 he left Shanghai to work for the Philippine Long Distance Telephone Company in Manila as an instructor in dial telephony. This work was suddenly interrupted in 1941 when Dave and his Manchurian-born wife, the former Jenny Eger, were interned by the Japanese.

In 1945, after their liberation by American troops, Dave and his wife came to this country where Dave joined the Signal Corps in San Francisco. In the early part of 1946 Dave came to Stromberg-Carlson as an installer; in 1947 he was brought to our main office as Assistant Chief Installer.

We at Stromberg-Carlson are glad that Dave Balis chose America, Rochester and our company as the place to settle down after journeys which took him to places that most of us can only read and dream about.

STROMBERG-CARLSON transmitter

Factory Trip

XY Dial Circuit Plates

It's a long way to the far end of the Stromberg-Carlson XY Circuit Plate line!

Nimble fingers thread the maze of wires from designated relays to plug terminalls.

From 30 people to 150 people and from 150 circuit plates to 750 per week — a 500% increase in production during the last two years.

Veteran foreman Jack Pilling has experienced the same sort of stepped up volume before. During World War II equipment orders were raised and lead time cut back on secret electronic equipment for the armed forces. The increased demand for XY Dial circuit plates is just another "giant" for Jack to kill.

Over one hundred and twenty-five different versions of circuit plates are now made. This has led to the adoption of a modified assembly line, where each worker performs diversified operations and handles the particular unit almost from start to finish.

The average time to complete one typical circuit plate is about half a day. As new girls are added they are trained in wiring and soldering, and then seated between experienced operators who can assist them to master the complex wiring operations.

Roving supervisors explain the process details to the operators, and inspectors visually check all work before it travels down the moving belt to the electrical inspection booths. Final inspection subjects each circuit plate to the same (or more severe) operating conditions which will be met in its field application.

As a new installation is made ready, or an existing exchange needs to expand, the individual circuit plates are merely jacked in, ready for use.

Operators are selected for demonstrated skills in following a complicated wiring diagram.

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Arkansas Twins

Mr. James Thompson is very proud of his new twins — XY Dial exchanges at Alma and Greenwood, Arkansas. These pictures could have been taken at either office (actually they show Greenwood) and the managerial group certainly appreciates the efficiency this provides.

Mr. Thompson began his telephone career in 1901 in Brunswick, Missouri. At one period Mr. Thompson was Vice President and Manager of the Three States Telephone Company of Corsicana, Texas. During the last thirty years he chose the more adventuresome part of acquiring and developing small companies in Oklahoma and Arkansas. In 1947 he traded his holdings in Oklahoma for additional exchanges in Arkansas, bringing his total to 14.

Among the reasons for his eminent success is the type of men associated with him. Mr. Tom Marts and Mr. Paul McCullough, his capable assistants, are now joined by his son, Mr. R. L. Thompson.

Greenwood is in a coal producing area and adjacent to Camp Chaffer, now reactivated; Alma is a center of truck gardening and the home of a progressive canning company. Both these towns and others in the United group look to an assured future as they convert to dial operation.

L. to r., Tom Marts, John Hearn, R. L. Thompson and Lewis McLane.

Mr. and Mrs. Tom Marts, Mrs. James Thompson, Mrs. Dick Thompson and Dick Thompson. The future telephone man seated on the deck represents the third generation.

James Thompson tests system as Mr. and Mrs. Paul McCullough look on.

Washington's oldest town goes XY

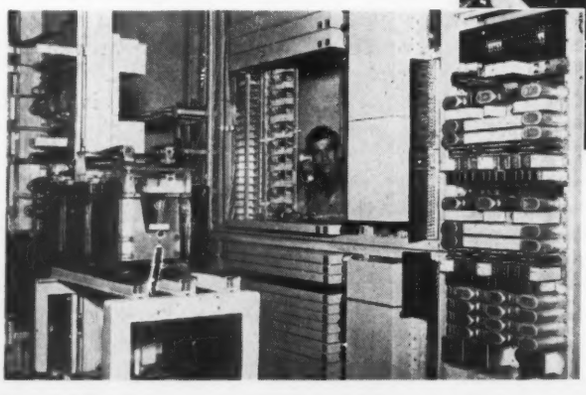
Toledo, Washington, has a long history. In 1800 the Hudson's Bay Company established a trading post here dealing in furs some years before Lewis and Clark started their expedition to the Northwest. Toledo had its first telephone at the turn of the century; the company was formed as a mutual cooperative — the Farmers Independent Telephone Company.

Growth was not spectacular in these days. By 1915 there were only 23 magneto telephones in service. During the next twenty years changes in management were frequent.

Mrs. Roselle became manager at Toledo in 1938 and during the next five years growth and improved service became apparent. In 1943 Mr. and Mrs. Roselle decided to become owners as well as full time operators. Their vision at this time has been amply rewarded.

The change from magneto to XY Dial became effective in August of this year. Mr. and Mrs. Roselle and the 350 customers now being served are very proud of their new dial system.

Mr. E. F. Roselle checks new XY equipment at Toledo, Washington.



Mr. Roselle cuts new XY system into service as Mrs. Roselle and Stromberg-Carlson's Fred E. McGrady stand by.

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THE BACK OF THE BOOK

By JOHN G. REYNOLDS

"Shall Workers Arise"

SYDNEY HARRIS, middle-of-the-page columnist for the *Chicago Daily News*, recently promoted an idea that is sure to start some "hemming" and "hawing." He suggested *that 10 a.m. is about the right hour for starting the day's work*, an idea described by his paper as — "*so loaded with vote appeal that we may yet see the Volunteers for Harris sending him to Congress to pass a save-labor act.*"

Harris' argument is that when one arrives on the job at 9 a.m., the first hour is spent in getting adjusted to the idea of going to work.

All right, we'll buy that. So, because we are starting at 10 a.m., we intelligently stay up an hour later. And somehow 10 a.m. seems just as early as 9 did before.

So let's make it 11. Now we are more progressive than Harris. But slowly the suspicion groweth that that first hour will seem just as early, be it 8 a.m. or noon. Ask any night worker.

It is doubtless old-fashioned of us, but we fear that the only way to be bright and eager at starting time is to get plenty of rest prior thereto. Pending Utopia, that is, when everybody's working hours will be from noon till 1 p.m., with an hour for lunch.

Christmas at Camp Drake

THE OTHER DAY this editor was looking around for some Christmas inspiration — something that would give his the Christmas spirit and send him rushing into Chicago's Loop raring to find that just right gift for the Mrs. For awhile nothing happened. Then he chanced to read a story filed from Camp Drake, Japan . . . It told of a newly born Japanese baby found wrapped in a dirty blanket in a telephone booth in a suburb of Tokyo the other day.

The baby was a girl. The story was an old one. A family of seven or eight children . . . too many mouths to feed . . . especially girl babies . . . life is cheap and hard . . . empty stomaches generate little sentiment.

The baby was turned over to authorities. They have too many cases like this. Adoptions are rare since Japan's birth and abortion rates are phenomenally high. What to do?

To shorten a long sequence, the baby was sent to one of four orphanages supported by the voluntary contributions of American soldiers fighting in Korea.

Because GI's are a sucker for a kid with a dirty face, they toss a few bucks into the pot every now and again. And those few bucks in the past year have mounted to $85,000 which is taking care of 717 orphans in the four institutions.

The fund is collected at Camp Drake, the big replacement center through which all troops pass on their way to Korea, whenever they get leave and also when they are on their way home.

It all started a year ago when Camp Drake was planning Japan's biggest Christmas party — for 1,000 Japanese orphans.

The party was such a success that the boys agreed they wanted to do something on a year-'round basis. So they started the fund that has grown steadily.

Now the kids go wild when a busload of GI's turn up. They climb all over them, hang from their arms and wrap themselves around their legs. They know it means candy bars and gum and toys.

At present, the Camp Drake fund is giving $7,170 a month to help support the 717.

The fund has installed refrigerators at each of the institutions, bought playground equipment, purchased the grounds and presented title to the Grace orphanage, and has granted emergency funds for each.

All of the orphans involved are purely Japanese. There are no half castes or mixed bloods. They are just unfortunate kids in a country where life is hard enough.

. . . After reading about Camp Drake I had the Christmas Spirit alright . . . The sun was brighter . . . Christmas cards were never prettier . . . I felt like going out and buying an American Flag and starting a parade in honor of a bunch of Camp Drake GI's . . .

P.S.: I got the Mrs. a present, too . . . If you got your Missus the same thing you're probably wondering "if she'll ever wear it." . . . Whether she does or not — here's hoping You A Merry Christmas!

New Competitor . . .

NINE-YEAR-OLD Neil Wildeboor of Kensington, Md., has recently announced his own appointment as president of the newly formed *N. & L. Phone Co.* His announcement coincided almost to the hour with that of his across-the-street neighbor, nine-year-old Larry Reed, who wants to let the business world know that he's vice president.

Headquarters of the new communication's venture are on view in the backyard of Neil's home where a network of surplus Army communication equipment has been strung among the trees.

In competition with this new firm, the "other phone company" (as Neil refers to the Bell System) has two strikes against it. Since the subscription list is limited to two, the risk of getting a wrong number has been virtually eliminated under the N. & L. system. You simply pick up the receiver and say, "Hello, Larry." If he's there, he'll answer.

In regards to rates, the N. & L. charges nothing for its service. "Our subscribers aren't getting much, so we don't charge much," Neil explained to financial experts intrigued by the new firm's plan for progress.

That's Rabbits For You!

TELEPHONE MEN building a telephone line way up in Alaska, expected trouble in several forms but they didn't think that having rabbits chew holes in telephone poles would be one of them. Alaskan rabbits, explained a Fairbanks wild life researcher, don't really like telephone poles, but they need the salt in the creosoting.

The Answer Is YES!

WESTERN UNION

1201

DL=Day Letter
NL=Night Letter
LT=Int'l Letter Telegram
VLT=Int'l Victory Ltr.

time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin

CTA136

.LRA178 NL PD=LORAIN OHIO 16=

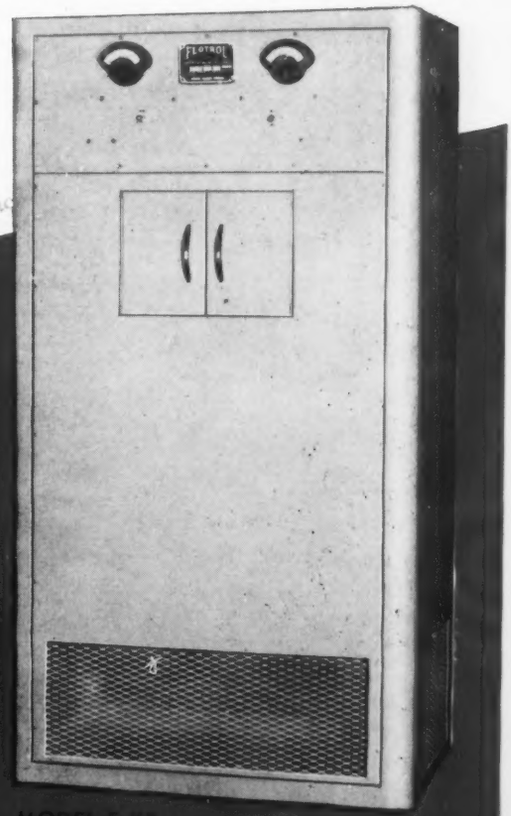
ENTERVILLE TELEPHONE CO=

CENTERVILLE NDAK=

YES, A THREE-PHASE FLOTROL WILL OPERATE IN PARALLEL WITH A MOTOR-GENERATOR SET. FURTHERMORE, IT WILL REGULATE THE CURRENT AND VOLTAGE OUTPUT OF THE GENERATOR. ORDER FLOTROL EQUIPPED WITH RESISTOR FOR PARALLELING WITH GENERATOR=

LORAIN PRODUCTS CORP
1122 F ST. LORAIN OHIO=

THE COMPANY WILL APPRECIATE SUGGESTIONS FR



MODEL 5 KB
100 Amps. 50 Volts

Now tried and proven, the combination of a FLOTROL with a motor-generator type battery charger may be the answer to your problem, too. By adding the proper three-phase FLOTROL to your exchange, you can maintain full-floating operation 24 hours daily, cut down the running time on your rotary equipment, provide adequate stand-by capacity, and realize sizeable savings on your monthly power bills. The equalizing feature installed in the FLOTROL will regulate the output voltage of your DC generator to the precise standard set by the FLOTROL and will divide the load current between the FLOTROL and the generator in proportion to their ratings.

For complete information write for Bulletin 161 listing three-phase FLOTROLS from 25 amp. to 200 amp. Single-phase FLOTROLS ranging from 1 amp to 24 amp. are listed in Bulletin 160.

FLOTROL
PARTNERS IN DEPENDABILITY

LORAIN PRODUCTS CORPORATION 1122 F ST., LORAIN, OHIO SUB-CYCLE

just like christmas all year long

Though we celebrate Christmas but once a year, the spirit of giving is certainly not seasonal.

You can make it seem like Christmas in July, if you wish, by giving your subscribers a new, more attractive directory. Give them a directory that is painstakingly accurate — one that reflects the high standards of the independent telephone industry. *We mean, of course, a new directory prepared and published according to our Complete Directory Service Plan.*

Such a directory will be a great asset to your subscriber relations program, because it will create additional good will. *And the extra net revenue you derive from this new directory will make it seem like Christmas all year long.*

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